

## INVENTOR SEARCH

=&gt; d his 167

(FILE 'HCAPLUS' ENTERED AT 15:07:34 ON 09 NOV 2010)  
L67 10 S L64 AND L66

=&gt; d que 167

L2 776 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON ("MIKAMI,  
KOICHI"/AU OR "SAKAMOTO, HIROTOSHI"/AU OR "YOSHIKATA,  
KUNIYAKI"/AU)

L3 QUE SPE=ON ABB=ON PLU=ON MIKAMI K?/AU  
L4 QUE SPE=ON ABB=ON PLU=ON SAKAMOTO H?/AU  
L5 QUE SPE=ON ABB=ON PLU=ON YOSHIKATA K?/AU  
L6 QUE SPE=ON ABB=ON PLU=ON L3 AND L4 AND L5  
L7 4 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L3 AND L4 AND  
L5

L8 16396 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON FUEL?(6A)CELL?  
(6A)SOLID?(6A)OXID?

L9 16030 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON (FUEL?(3A)CELL  
?) (L)(SOLID?(2A)OXID?)

L10 16595 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L8 OR L9  
L11 QUE SPE=ON ABB=ON PLU=ON SUBSTRAT? OR SURFACE? OR B  
ASE# OR SUBSTRUCT? OR UNDERSTRUCT? OR UNDERLAY? OR FO  
UNDATION? OR PANE? OR DISK? OR DISC# OR WAFER? OR PLATE  
OR PLATES

L12 QUE SPE=ON ABB=ON PLU=ON ELECTROLYT?

L13 8851 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L10 AND L12  
L14 4809 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L15 AND L14  
QUE SPE=ON ABB=ON PLU=ON ELECTROD? OR CATHOD? OR AN  
OD? OR ELECTROD?(2A)(POSITIVE OR NEGATIVE)

L15 3633 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L16 AND L17  
L16 1528 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L18 AND  
(CATHOD? OR ELECTROD?(2A)POSITIVE) AND (ANOD? OR  
ELECTROD?(2A)NEGATIVE)

L17 3633 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L18 OR L19  
QUE SPE=ON ABB=ON PLU=ON (SAME OR OPPOSITE)(3A)(SID  
E OR SURFACE)

L18 77 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L22 AND L23  
QUE SPE=ON ABB=ON PLU=ON (SPACE OR DISTAN? OR LENGTH  
H OR SEPARAT?) (3A) (MEASUR? OR PREDETERMIN? OR DETERMIN?  
OR SPECIF? OR EQUAL? OR EQUI? OR UNIFORM?)

L19 QUE SPE=ON ABB=ON PLU=ON EQUIDIS? OR EQUI?(A)DISTAN  
? OR EQUIDISTAN?

L20 9 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L22 AND (L25  
OR L26)

L21 86 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L24 OR L27  
L22 QUE SPE=ON ABB=ON PLU=ON SPACE? OR SPACING? OR DIST  
AN? OR LENGTH? OR SEPARAT? OR MEASUR? OR PREDETERMIN? O  
R DETERMIN? OR SPECIF? OR EQUAL? OR EQUI? OR UNIFORM? O  
R EQUI?(A)DISTAN? OR EQUIDISTAN?

L23 1579 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L22 AND L30  
L24 48 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L29 AND L31  
L25 86 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L29 OR L32  
QUE SPE=ON ABB=ON PLU=ON ELEMENT? OR BODY? OR UNIT?  
OR ASSEMBL?

L26 370 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L31 AND L35  
L27 21 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L36 AND L33  
L28 86 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L33 OR L37  
L29 QUE SPE=ON ABB=ON PLU=ON INSULAT?

L30 4 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L39 AND L40  
L31 52 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L31 AND L40  
L32 135 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L37 OR L39 OR  
L41 OR L42  
L33 QUE SPE=ON ABB=ON PLU=ON PLURAL? OR MULTI? OR SEVER  
AL? OR MANY

## 10/561,789-347144-EIC SEARCH

L45 39 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L43 AND L44  
 L46 105 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L39 OR L41 OR  
 L45  
 L47 135 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L46 OR L43  
 L48 QUE SPE=ON ABB=ON PLU=ON PRINT?  
 L49 8 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L47 AND L48  
 L50 QUE SPE=ON ABB=ON PLU=ON ADHESI? OR ADHERE? OR STIC  
 K? OR CLING? OR BOND? OR CEMENT? OR CONGLUTIN? OR AGGLU  
 TIN? OR MUCILAG? OR TACK? OR GLUE? OR GLUING OR PASTE?  
 OR PASTING OR GUM? OR HOLD? OR GRIP? OR GRASP? OR BIND?  
 OR SEAL?  
 L51 34 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L47 AND L50  
 L52 QUE SPE=ON ABB=ON PLU=ON GROOVE? OR FURROW? OR CLEF  
 T###? OR GRID? OR MESH###? OR SCORE##? OR INDET? OR INCI  
 S? OR STRIAT? OR GOUGE? OR TRENCH? OR TROUGH? OR RUT##?  
 # OR RIBBED?  
 L53 QUE SPE=ON ABB=ON PLU=ON CHANNEL? OR CONDUIT? OR DU  
 CT? OR PASSAGE? OR TROUGH? OR TUNNEL?  
 L54 38 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L47 AND (L52  
 OR L53)  
 L55 135 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L47 OR L49 OR  
 L51 OR L54  
 L56 QUE SPE=ON ABB=ON PLU=ON DISPOS? OR ATTACH? OR ADHE  
 R? OR ADSOR? OR ABSOR? OR PART? OR ADJ? OR SINGL?  
 L57 66 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L55 AND L56  
 L58 QUE SPE=ON ABB=ON PLU=ON CONNECT? OR INTERCONNECT?  
 OR INTER?(A)CONNECT?  
 L59 135 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L55 OR L57  
 L60 49 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L59 AND L58  
 L61 112 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L60 OR L39  
 L63 135 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L59 OR L60 OR  
 L61  
 L64 10 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L63 AND ((L2  
 OR L3 OR L4 OR L5 OR L6 OR L7))  
 L65 QUE SPE=ON ABB=ON PLU=ON FUELCELL? OR (FUEL?(2A)CEL  
 L7?) OR FC OR SOFC OR DFC OR PEMFC  
 L66 135 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L63 AND L65  
 L67 10 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L64 AND L66

INVENTOR SEARCH RESULTS

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L67 ANSWER 1 OF 10 HCPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2009:1296298 HCPLUS Full-text  
 DOCUMENT NUMBER: 151:474568  
 TITLE: Solid oxide fuel  
 cell with current collector having  
 irregularities on surface,  
 disposed on electrode having  
 irregular surface, and manufacture  
 of same cell  
 INVENTOR(S): Kotani, Kazushi; Yoshikata, Kuniaki;  
 Watanabe, Junko  
 PATENT ASSIGNEE(S): Dai Nippon Printing Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 10pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2009245897	A	20091022	JP 2008-94131	2008 0331
PRIORITY APPLN. INFO.:			JP 2008-94131	2008 0331

ED Entered STN: 23 Oct 2009

AB The title cell provided with a current collector having irregularities on the surface comprises an electrolyte held between an anode and cathode, wherein at least one of the electrodes is structured to allow the current collector to be attached thereto, and has irregularities which can be engaged with those on the collector, at least on part of the surface to which the collector is attached. The title method for manufacture of the title cell comprises steps (1) for preparing the electrolyte; and (2-1) for forming the anode on one side of the electrolyte and (2-2) for forming the cathode on the other side of the electrolyte, wherein at least one of the steps (2-1) and (2-2) comprises steps for disposing the electrode material on the electrolyte by printing; for drying the material; providing irregularities on the material; and for sintering the material. The cell has reduced contact resistance between the electrode and current collector, thereby improving power generation efficiency.

IPC1 HO1M0004-86 [I,A]; HO1M0008-02 [I,A]; HO1M0008-12 [N,A]

IPC2 HO1M0004-86 [I,C]; HO1M0004-86 [I,A]; HO1M0008-02 [I,C];

HO1M0008-02 [I,A]; HO1M0008-12 [N,C]; HO1M0008-12 [N,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid oxide fuel cell

current collector electrode surface roughness

IT Surface roughness

(current collector and electrode; solid  
 oxide fuel cell with  
 surface roughness on current collector and  
 electrode)

IT Electric conductors

(current collectors; solid oxide  
 fuel cell with surface roughness on  
 current collector and electrode)

IT Embossing

(on current collector and electrode; solid  
 oxide fuel cell with  
 surface roughness on current collector and  
 electrode)

IT Fuel cell electrodes  
 (solid oxide fuel cell  
 with surface roughness on current collector and  
 electrode)  
 IT Fuel cells  
 (solid oxide; solid oxide  
 fuel cell with surface roughness on  
 current collector and electrode)  
 IT 1313-99-1, Nickel oxide (NiO), uses 681441-22-5,  
 Cerium gadolinium oxide (Ce0.9Gd0.1O1.9)  
 RL: PEP (Physical, engineering or chemical process); TEM  
 (Technical or engineered material use); PROC (Process); USES  
 (Uses)  
 (anode containing; solid oxide  
 fuel cell with surface roughness on  
 current collector and electrode)  
 IT 148595-66-8, Cobalt iron lanthanum strontium oxide  
 (Co0.2Fe0.8La0.6Sr0.4O3)  
 RL: PEP (Physical, engineering or chemical process); TEM  
 (Technical or engineered material use); PROC (Process); USES  
 (Uses)  
 (cathode; solid oxide  
 fuel cell with surface roughness on  
 current collector and electrode)  
 IT 7440-06-4, Platinum, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (current collectors; solid oxide  
 fuel cell with surface roughness on  
 current collector and electrode)

L67 ANSWER 2 OF 10 HCPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 20081250520 HCPLUS Full-text  
 DOCUMENT NUMBER: 149:451890  
 TITLE: Solid oxide fuel  
 cells (SOFC) with mechanical  
 strength  
 INVENTOR(S): Yoshikata, Kuniaki; Kotani, Kazushi  
 PATENT ASSIGNEE(S): Dai Nippon Printing Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 7pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2008251383	A	20081016	JP 2007-92299	2007 0330
PRIORITY APPLN. INFO.:			JP 2007-92299	2007 0330

ED Entered STN: 17 Oct 2008

AB The title SOFC comprises a support substrate equipped with ≥1 hole(s), a fuel electrode covering the hole(s), an electrolyte, and an oxide electrode formed in the order and a porous current collector thicker than the substrate is formed under filling the hole(s) in the substrate. Low-cost elec. insulating materials can be used as the substrate.

IPC1 H01M0008-02 [I,A]; H01M0008-12 [I,A]

IPC2 H01M0008-02 [I,C]; H01M0008-02 [I,A]; H01M0008-12 [I,C];  
 H01M0008-12 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid oxide fuel cell low  
 cost high strength; porous current collector SOFC

structure; low cost insulating substrate  
SOFC structure  
IT Electric conductors  
(porous; low-cost SOFC formed on mech. strong elec.  
insulating substrates having through holes  
filled with and covered with porous current collector layer)  
IT Fuel cells  
(solid oxide; low-cost SOFC  
formed on mech. strong elec. insulating  
substrates having through holes filled with and covered  
with porous current collector layer)  
IT Electric insulators  
(substrates; low-cost SOFC formed on mech.  
strong elec. insulating substrates having  
through holes filled with and covered with porous current  
collector layer)

L67 ANSWER 3 OF 10 HCPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 200711420977 HCPLUS Full-text

DOCUMENT NUMBER: 148:36556

TITLE: Thin solid oxide  
fuel cell (SOFC)  
with thin-film electrolyte membrane  
and manufacture thereof

INVENTOR(S): Yoshiketa, Kuniaki; Sakamoto,  
Hirotoshi; Kotani, Kazushi

PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokyo Koho, 11pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent  
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2007323957	A	20071213	JP 2006-152907	2006 0531
PRIORITY APPLN. INFO.:			JP 2006-152907	2006 0531

ED Entered STN: 13 Dec 2007

AB The title SOFC comprises a substrate supporting a thin-film anode (or cathode), a thin-film electrolyte membrane, and a thin-film cathode (or anode) in the order and the substrate is provided with a gas passage running through the opposite side of the substrate and the anode (or cathode). Method for manufacture of the SOFC is also claimed. The passage may be prepared by etching and the thin layers may be formed by printing.

IPC1 H01M0008-02 [I,A]; H01M0008-12 [I,A]

IPC2 H01M0008-02 [I,C]; H01M0008-02 [I,A]; H01M0008-12 [I,C];

H01M0008-12 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST thin film solid oxide fuel  
cell; SOFC thin film electrode  
electrolyte printing

IT Fuel cells  
(solid oxide; structure of thin-film  
SOFC and its manufacture)

IT Etching

Screen printing

(structure of thin-film SOFC and its manufacture)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE  
THIS RECORD (1 CITINGS)

L67 ANSWER 4 OF 10 HCPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2007:1178611 HCPLUS Full-text  
 DOCUMENT NUMBER: 147:472145  
 TITLE: The solid oxide  
       electrolyte fuel  
       cell and its manufacturing method  
 INVENTOR(S): Sakamoto, Hirotoshi; Yoshikata,  
               Kuniaki; Kotani, Kazushi  
 PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 11pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2007273429	A	20071018	JP 2006-101179	2006 0331
PRIORITY APPLN. INFO.:				JP 2006-101179
				2006 0331

ED    Entered STN: 19 Oct 2007  
 AB    The disclosed fuel cell comprises a oxide solid oxide electrolyte film, air and fuel  
 electrodes formed on opposite surfaces of the electrolyte, and porous elec. conductive  
 supports formed on the electrodes. The curling of the fuel cell unit during manufacturing is  
 effectively prevented by the supports. IPCI H01M0008-02 [I,A]; H01M0008-12 [I,A]  
 IPCR H01M0008-02 [I,C]; H01M0008-02 [I,A]; H01M0008-12 [I,C];  
       H01M0008-12 [I,A]  
 CC    52-2 (Electrochemical, Radational, and Thermal Energy Technology)  
 ST    solid electrolyte fuel cell manuf  
       curling prevention  
 IT    Fuel cells  
       (solid electrolyte; curling preventive supports for)  
 OS.CITING REF COUNT: 1    THERE ARE 1 CAPLUS RECORDS THAT CITE  
                           THIS RECORD (1 CITINGS)

L67    ANSWER 5 OF 10    HCPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2006:111643 HCPLUS Full-text  
 DOCUMENT NUMBER: 144:72335  
 TITLE: Solid oxide fuel  
       cell and its base material  
 INVENTOR(S): Yoshikata, Kuniaki; Sakamoto,  
               Hirotoshi  
 PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2006004672	A	20060105	JP 2004-177283	2004 0615
PRIORITY APPLN. INFO.:				JP 2004-177283
				2004 0615

ED    Entered STN: 06 Jan 2006

AB The base material has (1) an electrolyte, anodes set on one side of the electrolyte, and cathodes set on the same side to have fixed intervals between the anodes and the cathodes or (2) a substrate, electrolytes on the substrate, anodes and cathodes on the electrolytes, wherein the electrodes have approx. equilaterally polygonal or round shape. The fuel cell has the base material and interconnectors for connecting electrodes on the base material. Electron conduction loss in current collection is decreased in the cell to improve power generation efficiency. IPCI H01M0008-02 [I,A]; H01M0008-12 [I,A]; H01M0008-24 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid oxide fuel cell

polygonal round electrode interconnector

IT Interconnections, electric  
(cell with; solid oxide  
fuel cell having polygonal or round  
electrodes on the same side of  
electrolyte)

IT Fuel cell electrodes  
(solid oxide; solid oxide  
having polygonal or round electrodes on the  
same side of electrolyte)

IT Fuel cells  
(solid oxide; solid oxide  
fuel cell having polygonal or round  
electrodes on the same side of  
electrolyte)

IT 1313-99-1, Nickel oxide (NiO), uses 116875-84-4,  
Cerium samarium oxide (Ce0.8Sm0.2O1.9)  
RL: DEV (Device component use); USES (Uses)  
(anode containing; solid oxide  
fuel cell having polygonal or round  
electrodes on the same side of  
electrolyte)

IT 59989-70-7, Cobalt samarium strontium oxide  
(CoSm0.5Sr0.5O3)  
RL: DEV (Device component use); USES (Uses)  
(cathode; solid oxide  
fuel cell having polygonal or round  
electrodes on the same side of  
electrolyte)

IT 681441-22-5, Cerium gadolinium oxide (Ce0.9Gd0.1O1.9)  
RL: DEV (Device component use); USES (Uses)  
(electrolyte; solid oxide  
fuel cell having polygonal or round  
electrodes on the same side of  
electrolyte)

IT 7440-57-5, Gold, uses  
RL: DEV (Device component use); USES (Uses)  
(interconnector; solid oxide  
fuel cell having polygonal or round  
electrodes on the same side of  
electrolyte)

IT 1344-28-1, Alumina, uses  
RL: DEV (Device component use); USES (Uses)  
(substrate; solid oxide  
fuel cell having polygonal or round  
electrodes on the same side of  
electrolyte)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE  
THIS RECORD (1 CITINGS)

L67 ANSWER 6 OF 10 HCPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2005:11074821 HCPLUS Full-text  
DOCUMENT NUMBER: 143:329209  
TITLE: Solid oxide fuel  
cell with high output and its  
manufacture  
INVENTOR(S): Yoshikata, Kuniaki; Sakamoto,

Hirotoshi  
 PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokyo Koho, 10 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005276535	A	20051006	JP 2004-85790	2004 0323
PRIORITY APPLN. INFO.:			JP 2004-85790	2004 0323

ED Entered STN: 07 Oct 2005

AB The fuel cell is manufactured by the following steps: (1) forming a fuel electrode paste containing Ni oxide, Ce-based oxide, and binder, (2) forming an air electrode paste containing perovskite-type oxide and binder, (3) applying the fuel electrode paste on one of the surfaces of an electrolyte and sintering at 1200-1600°, and (4) applying the air electrode paste on the same surface and sintering at 1000-1300°. The obtained fuel cell is also claimed.

IPC1 H01M0004-88 [ICM,7]; H01M0008-02 [ICM,7]; H01M0008-12 [ICM,7]

IPC2 H01M0004-88 [I,A]; H01M0004-88 [I,C\*]; H01M0008-02 [I,A];

H01M0008-02 [I,C\*]; H01M0008-12 [I,A]; H01M0008-12 [I,C\*]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST electrode paste sintering solid

oxide fuel cell manuf; solid

oxide fuel cell high output

IT Fuel cell anodes

Fuel cell cathodes

Sintering

(manufacture of solid oxide fuel cell with high output by sintering of electrode pastes on electrolyte)

IT Fuel cells

(solid oxide; manufacture of solid oxide fuel cell with high output by sintering of electrode pastes on electrolyte)

IT 59989-70-7, Cobalt samarium strontium oxide (CoSm0.5Sr0.5O3)

RL: DEV (Device component use); USES (Uses)

(air electrode; manufacture of solid oxide fuel cell with high output by sintering of electrode pastes on electrolyte)

IT 1313-99-1, Nickel oxide (NiO), uses

RL: CAT (Catalyst use); DEV (Device component use); USES (Uses)

(fuel electrode; manufacture of solid oxide fuel cell with high output by sintering of electrode pastes on electrolyte)

IT 116875-84-4, Cerium samarium oxide (Ce0.8Sm0.2O1.9)

RL: DEV (Device component use); USES (Uses)

(fuel electrode; manufacture of solid oxide fuel cell with high output by sintering of electrode pastes on electrolyte)

L67 ANSWER 7 OF 10 HCPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2005:546312 HCPLUS [Full-text](#)

DOCUMENT NUMBER: 143:81082

TITLE: Solid oxide fuel

## 10/561,789-347144-EIC SEARCH

cell with improved wiring configuration and manufacture thereof  
 INVENTOR(S): Sakamoto, Hirotoshi; Yoshikata, Kuniaki; Mikami, Koichi  
 PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005166561	A	20050623	JP 2003-406600	2003 1204
JP 4379584	B2	20091209	JP 2003-406600	2003 1204
PRIORITY APPLN. INFO.:				

ED Entered STN: 24 Jun 2005

AB A fuel cell comprises an electrolyte, a plurality of electrodes disposed on 1 surface of the electrolyte and composed of fuel electrodes and air electrodes, and interconnectors for connecting the electrodes. The interconnectors have a crossing section where they cross, this section being at a distance from some of the electrodes. The crossing section is formed from a conductive wire, and an insulating layer can be formed between the crossing section and the electrodes. When the fuel cell is manufactured, a burn-out material can be used to install the interconnectors, and this material is then burned out to form a space between the interconnectors and the electrodes. The degree of freedom of wiring design is increased, while preventing short circuiting. IPCI H01M0008-02 [I,A]; H01M0008-12 [I,A]; IPCR H01M0008-02 [I,A]; H01M0008-02 [I,C\*]; H01M0008-12 [I,A]; H01M0008-12 [I,C\*]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid oxide fuel cell  
interconnection

IT Interconnections, electric  
(solid oxide fuel cell  
with improved wiring configuration and manufacture thereof)

IT Fuel cells  
(solid oxide; solid oxide  
fuel cell with improved wiring configuration  
and manufacture thereof)

L67 ANSWER 8 OF 10 HCPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2005492978 HCPLUS Full-text

DOCUMENT NUMBER: 143:10642

TITLE: Membrane-free solid oxide  
fuel cell

INVENTOR(S): Yoshikata, Kuniaki; Mikami, Koichi

PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005149815	A	20050609	JP 2003-383069	2003 1112

PRIORITY APPLN. INFO.:

JP 2003-383069

2003  
1112

ED Entered STN: 10 Jun 2005

AB The claimed fuel cell is equipped with  $\geq 1$  pair of an anode and a cathode formed on the same flat surface of a solid electrolyte, where the solid electrolyte surface is roughened at areas contacting with the anode and the cathode. The fuel cell provides high power output by the increased contact areas.

IPC1 H01M0008-02 [ICM,7]; H01M0008-12 [ICS,7]

IPC2 H01M0008-02 [I,A]; H01M0008-02 [I,C\*]; H01M0008-12 [I,A];  
H01M0008-12 [I,C\*]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid oxide fuel cell  
electrolyte surface roughening

IT Fuel cells

(solid oxide; surface roughening  
of solid electrolyte in membrane-free  
solid oxide fuel cell)

IT Fuel cell electrolytes

(surface roughening of solid  
electrolyte in membrane-free solid  
oxide fuel cell)IT 55575-06-9, Cerium samarium oxide 192575-28-3, Cerium  
gallium oxideRL: DEV (Device component use); USES (Uses)  
(electrolytes; surface roughening of  
solid electrolyte in membrane-free  
solid oxide fuel cell)

L67 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2005116053 HCAPLUS Full-text

DOCUMENT NUMBER: 14297505

TITLE: Solid oxide fuel  
cellINVENTOR(S): Yoshikata, Kuniaki; Mikami,  
Keiichi; Sakamoto, Hirotoshi

PATENT ASSIGNEE(S): Dai Nippon Printing Co., Ltd., Japan

SOURCE: PCT Int. Appl., 44 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2005001970	A1	20050106	WO 2004-JP9347	2004 0625
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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,  
CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,  
ES, FI, GB, GD, GE, GR, GM, HR, HU, ID, IL, IN, IS, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,  
MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT,  
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT,  
TZ, UA, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MN, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH,  
CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,  
NC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI,  
CM, GA, GN, GO, GW, ML, MR, NE, SN, TD, TG

JP 2005259604	A	20050922	JP 2004-71596	2004 0312
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## 10/561,789-347144-EIC SEARCH

CA 2533564	A1	20050106	CA 2004-2533564	
				2004
				0625
JP 2005038848	A	20050210	JP 2004-188485	
				2004
				0625
DE 112004001144	T5	20060524	DE 2004-112004001144	
				2004
				0625
CN 1813366	A	20060802	CN 2004-80017949	
				2004
				0625
CN 100438168	C	20081126		
CN 101299466	A	20081105	CN 2008-10092363	
				2004
				0625
JP 2005044792	A	20050217	JP 2004-197015	
				2004
				0702
JP 2005056839	A	20050303	JP 2004-216151	
				2004
				0723
US 20070248864	A1	20071025	US 2007-561789	
				2007
				0315
PRIORITY APPLN. INFO.:			JP 2003-182618	A
				2003
				0626
			JP 2003-271191	A
				2003
				0704
			JP 2003-278485	A
				2003
				0723
			JP 2004-71596	A
				2004
				0312
			CN 2004-80017949	A3
				2004
				0625
			WO 2004-JP9347	W
				2004
				0625

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED    Entered STH: 07 Jan 2005

AB    A solid oxide fuel cell is disclosed which has improved problems such as vulnerability and high cost conventional planar/tubular solid oxide fuel cells

involved. The solid oxide fuel cell is a membrane-free solid oxide fuel cell to which a mixture gas of a fuel gas and an oxidant gas is supplied for generation of electricity, and comprises a substrate, an electrolyte which is arranged on one surface of the substrate, and at least one electrode body (E) which is composed of a fuel electrode and an air electrode arranged on the same surface of the electrolyte at a certain distance from each other.

IPC1 H01M0008-02 [ICM,7]; H01M0008-12 [ICS,7]; H01M0008-24 [ICS,7]

IPC2 H01M0008-02 [I,C\*]; H01M0008-02 [I,A]; H01M0008-12 [I,C\*];

H01M0008-12 [I,A]; H01M0008-24 [I,C\*]; H01M0008-24 [I,A]

CC    52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 72, 76

ST    solid oxide fuel cell electrode interconnector

IT    Fuel cell electrode

Fuel cell separators  
 interconnections, electric  
 (solid oxide fuel cell  
 electrode interconnector)

IT Fuel cells  
 (solid oxide; solid oxide  
 fuel cell electrode  
 interconnector)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L67 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2004:588641 HCAPLUS Full-text  
 DOCUMENT NUMBER: 141:126364  
 TITLE: Fuel cell  
 INVENTOR(S): Yoshikata, Kuniaki; Mikami, Takekazu  
 PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004207233	A	20040722	JP 2003-411076	2003 1209
JP 4431862	B2	20100317	JP 2002-356782	A 2002 1209

PRIORITY APPLN. INFO.:

ED Entered STN: 23 Jul 2004

AB The fuel cell has  $\geq 1$  unit cell containing an electrolyte, a cathode, and an anode, and a substrate supporting the unit cell; where the electrolyte is located on 1 side of the substrate, and the cathode and anode are on that same side of the substrate to hold the electrolyte.

IPC1 H01M0008-02 [I,A]; H01M0008-12 [I,A]; H01M0004-86 [I,A]  
 IPCR H01M0008-02 [I,A]; H01M0008-02 [I,C\*]; H01M0008-12 [I,A];  
 H01M0008-12 [I,C\*]; H01M0008-24 [I,A]; H01M0008-24 [I,C\*];  
 H01M0004-86 [I,C]; H01M0004-86 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST structure fuel cell electrolyte  
 substrate support

IT Fuel cells

(structure of solid oxide fuel  
 cells containing supporting substrates for  
 electrolyte and electrodes)

TEXT SEARCH

=&gt; d his 187

(FILE 'HCAPLUS' ENTERED AT 15:07:34 ON 09 NOV 2010)  
 L87           30 S L86 AND L10  
               SAV TEMP L87 WE1789HCP/A

=> d que 187

L2           776 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON ("MIKAMI,  
           KOICHI"/AU OR "SAKAMOTO, HIROTOSHI"/AU OR "YOSHIKATA,  
           KUNIAKI"/AU)  
 L3           QUE SPE=ON ABB=ON PLU=ON MIKAMI K?/AU  
 L4           QUE SPE=ON ABB=ON PLU=ON SAKAMOTO H?/AU  
 L5           QUE SPE=ON ABB=ON PLU=ON YOSHIKATA K?/AU  
 L6           QUE SPE=ON ABB=ON PLU=ON L3 AND L4 AND L5  
 L7           4 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L3 AND L4 AND  
           L5  
 L8           16396 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON FUEL?(6A)CELL?  
           (6A)SOLID?(6A)OXID?  
 L9           16030 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON (FUEL?(3A)CELL  
           ?(L)(SOLID?(2A)OXID?)  
 L10          16595 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L8 OR L9  
 L11          QUE SPE=ON ABB=ON PLU=ON SUBSTRAT? OR SURFACE? OR B  
           ASE# OR SUBSTRUCT? OR UNDERSTRUCT? OR UNDERLAY? OR FO  
           UNDATION? OR PAN? OR DISK? OR DISC# OR WAFER? OR PLATE  
           OR PLATES  
 L12          QUE SPE=ON ABB=ON PLU=ON ELECTROLYT?  
 L13          8851 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L10 AND L12  
 L14          4809 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L15 AND L14  
 L15          QUE SPE=ON ABB=ON PLU=ON ELECTROD? OR CATHOD? OR AN  
           OD? OR ELECTROD?(2A)(POSITIVE OR NEGATIVE)  
 L16          3633 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L16 AND L17  
 L17          1528 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L18 AND  
           (CATHOD? OR ELECTROD?(2A)POSITIVE) AND (ANOD? OR  
           ELECTROD?(2A)NEGATIVE)  
 L18          3633 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L18 OR L19  
 L19          QUE SPE=ON ABB=ON PLU=ON (SAME OR OPPOSITE)(3A)(SID  
           E OR SURFACE)  
 L20          77 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L22 AND L23  
 L21          QUE SPE=ON ABB=ON PLU=ON (SPACE OR DISTAN? OR LENGTH  
           OR SEPARAT?)(3A)(MEASUR? OR PREDETERMIN? OR DETERMIN?  
           OR SPECIF? OR EQUAL? OR EQUI? OR UNIFORM?)  
 L22          QUE SPE=ON ABB=ON PLU=ON EQUIDIS? OR EQUI?(A)DISTAN  
           ? OR EQUIDISTAN?  
 L23          9 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L22 AND (L25  
           OR L26)  
 L24          86 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L24 OR L27  
 L25          QUE SPE=ON ABB=ON PLU=ON SPACE? OR SPACING? OR DIST  
           AN? OR LENGTH? OR SEPARAT? OR MEASUR? OR PREDETERMIN? O  
           R DETERMIN? OR SPECIF? OR EQUAL? OR EQUI? OR UNIFORM? O  
           R EQUI?(A)DISTAN? OR EQUIDISTAN?  
 L26          1579 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L22 AND L30  
 L27          48 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L29 AND L31  
 L28          86 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L29 OR L32  
 L29          QUE SPE=ON ABB=ON PLU=ON ELEMENT? OR BODY? OR UNIT?  
           OR ASSEMBL?  
 L30          370 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L31 AND L35  
 L31          21 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L36 AND L33  
 L32          86 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L33 OR L37  
 L33          QUE SPE=ON ABB=ON PLU=ON INSULAT?  
 L34          4 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L39 AND L40  
 L35          52 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L31 AND L40  
 L36          135 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L37 OR L39 OR  
           L41 OR L42  
 L37          QUE SPE=ON ABB=ON PLU=ON PLURAL? OR MULTI? OR SEVER

AL? OR MANY  
 L45 39 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L43 AND L44  
 L46 105 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L39 OR L41 OR  
 L45  
 L47 135 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L46 OR L43  
 L48 QUE SPE=ON ABB=ON PLU=ON PRINT?  
 L49 8 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L47 AND L48  
 L50 QUE SPE=ON ABB=ON PLU=ON ADHESI? OR ADHERE? OR STIC  
 K? OR CLING? OR BOND? OR CEMENT? OR CONGLUTIN? OR AGGLU  
 TIN? OR MUCILAG? OR TACK? OR GLUE? OR GLUING OR PASTE?  
 OR PASTING OR GUM? OR HOLD? OR GRIP? OR GRASP? OR BIND?  
 OR SEAL?  
 L51 34 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L47 AND L50  
 L52 QUE SPE=ON ABB=ON PLU=ON GROOVE? OR FURROW? OR CLEF  
 T#?? OR GRID? OR MESH#?? OR SCORE#? OR INDET? OR INCI  
 S? OR STRIAT? OR GOUGE? OR TRENCH? OR TROUGH? OR RUT#??  
 # OR RIBBED?  
 L53 QUE SPE=ON ABB=ON PLU=ON CHANNEL? OR CONDUIT? OR DU  
 CT? OR PASSAGE? OR TROUGH? OR TUNNEL?  
 L54 38 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L47 AND (L52  
 OR L53)  
 L55 135 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L47 OR L49 OR  
 L51 OR L54  
 L56 QUE SPE=ON ABB=ON PLU=ON DISPOS? OR ATTACH? OR ADHE  
 R? OR ADSOR? OR ABSOR? OR PART? OR ADJ? OR SINGL?  
 L57 66 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L55 AND L56  
 L58 QUE SPE=ON ABB=ON PLU=ON CONNECT? OR INTERCONNECT?  
 OR INTER?(A)CONNECT?  
 L59 135 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L55 OR L57  
 L60 49 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L59 AND L58  
 L61 112 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L60 OR L39  
 L63 135 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L59 OR L60 OR  
 L61  
 L64 10 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L63 AND ((L2  
 OR L3 OR L4 OR L5 OR L6 OR L7))  
 L65 QUE SPE=ON ABB=ON PLU=ON FUELCELL? OR (FUEL?(2)CEL  
 L7?) OR FC OR SOFC OR DFC OR PEMFC  
 L66 135 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L63 AND L65  
 L67 10 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L64 AND L66  
 L68 125 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L66 NOT L67  
 L69 QUE SPE=ON ABB=ON PLU=ON PY=<2005 NOT P/DT  
 L70 QUE SPE=ON ABB=ON PLU=ON (PY=<2005 OR PRY=<2005 OR  
 AY=<2005 OR MY=<2005 OR REVIEW/DT) AND P/DT  
 L71 79 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L68 AND (L69  
 OR L70)  
 L72 30 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L71 AND L58  
 L73 55 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L71 AND L33  
 L75 18 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L72 AND L73  
 L76 55 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L73 AND (L23  
 OR L25 OR L26 OR L48 OR L50)  
 L80 55 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L76 AND L12  
 L81 51 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L80 AND L23  
 L82 51 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L80 AND (SAME  
 OR OPPOS?)  
 L83 51 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L81 OR L82  
 L84 52 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L83 OR L75  
 L85 18 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L84 AND (L72  
 OR L75)  
 L86 30 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L85 OR L72 OR  
 L75  
 L87 30 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L86 AND L10

TEXT SEARCH

=> d 187 1-30 ibib ed abs hitind

L87 ANSWER 1 OF 30 HCPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2008:490294 HCPLUS Full-text  
 DOCUMENT NUMBER: 148:475888  
 TITLE: Solid polymer MEMS-based  
 fuel cells  
 INVENTOR(S): Jankowski, Alan F.; Morse, Jeffrey D.  
 PATENT ASSIGNEE(S): The Regents of the University of California,  
 USA  
 SOURCE: U.S., 15pp., Cont.-in-part of U.S. Ser.  
 No.241,159.  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 3  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 7361424	B2	20080422	US 2003-637915	2003 0808
US 20040048128	Al	20040311		<--
US 20030138685	Al	20030724	US 1999-241159	1999 0201
US 6638654	B2	20031028		<--
US 20040043273	Al	20040304	US 2003-637914	2003 0808
US 7189471	B2	20070313		<--
PRIORITY APPLN. INFO.:			US 1999-241159	A2
				1999 0201
				<--

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 23 Apr 2008

AB Disclosed is a micro-electro-mech. systems (MEMS) based thin-film fuel cells for elec. power applications. The MEMS-based fuel cell may be of a solid oxide type, a solid polymer type, or a proton exchange membrane type, and each fuel cell basically consists of an anode and a cathode separated by an electrolyte layer. The electrolyte layer can consist of either a solid oxide or solid polymer material, or proton exchange membrane electrolyte materials may be used. Addnl. catalyst layers can also sep. the electrodes (cathode and anode) from the electrolyte. Gas manifolds are utilized to transport the fuel and oxidant to each cell and provide a path for exhaust gases. The elec. current generated from each cell is drawn away with an interconnect and support structure integrated with the gas manifold. The fuel cells utilize integrated resistive heaters for efficient heating of the materials. By combining MEMS technol. with thin-film deposition technol., thin-film fuel cells having microflow channels and full-integrated circuitry can be produced that will lower the operating temperature and will yield an order of magnitude greater power d. than the currently known fuel cells.

INCL 429019000; 429030000; 429032000; 429038000; 429039000; 427115000

IPC1 H01M0008-06 [I,A]; H01M0008-04 [I,A]

IPC2 H01M0008-06 [I,C]; H01M0008-06 [I,A]; H01M0008-04 [I,C];

H01M0008-04 [I,A]; H01M0008-10 [I,C\*]; H01M0008-10 [I,A];

H01M0008-12 [I,C\*]; H01M0008-12 [I,A]; H01M0008-24 [I,C\*];

H01M0008-24 [I,A]

NCL 429/425.000; 427/115.000; 429/465.000; 429/513.000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38, 76

ST solid polymer MEMS based fuel cell

IT Sol-gel processing  
(coating; solid polymer MEMS-based fuel cells)

IT Catalysts  
(electrocatalysts; solid polymer MEMS-based fuel cells)

IT Coating materials  
(insulation; solid polymer MEMS-based fuel cells)

IT Control apparatus  
(microcontroller; solid polymer MEMS-based fuel cells)

IT Pumps  
(micropumps; solid polymer MEMS-based fuel cells)

IT Valves  
(microvalves; solid polymer MEMS-based fuel cells)

IT Sulfonic acids  
RL: TEM (Technical or engineered material use); USES (Uses)  
(perfluorosulfonic acid polymers; solid polymer MEMS-based fuel cells)

IT Vapor deposition process  
(phys.; solid polymer MEMS-based fuel cells)

IT Fuel cells  
(proton exchange membrane; solid polymer MEMS-based fuel cells)

IT Micromachines  
(pumps; solid polymer MEMS-based fuel cells)

IT Fuel gas manufacturing  
(reforming; solid polymer MEMS-based fuel cells)

IT Heaters  
(resistive; solid polymer MEMS-based fuel cells)

IT Coating process  
(sol-gel; solid polymer MEMS-based fuel cells)

IT Fuel cells  
(solid oxide; solid polymer MEMS-based fuel cells)

IT Chemical vapor deposition  
Microelectromechanical systems  
(solid polymer MEMS-based fuel cells)

IT Hydrocarbons  
RL: RCT (Reactant); TEM (Technical or engineered material use);  
RACT (Reactant or reagent); USES (Uses)  
(solid polymer MEMS-based fuel cells)

IT Coating process  
(spin-cast; solid polymer MEMS-based fuel cells)

IT Fluoropolymers  
RL: TEM (Technical or engineered material use); USES (Uses)  
(sulfo-containing, perfluoro; solid polymer MEMS-based fuel cells)

IT 1333-74-0P, Hydrogen, uses  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(solid polymer MEMS-based fuel cells)

IT 1344-28-1, Alumina, uses 7440-21-3, Silicon, uses

## 10/561,789-347144-EIC SEARCH

RL: TEM (Technical or engineered material use); USES (Uses)  
 (solid polymer MEMS-based fuel cells)

OS.CITING REF COUNT: 22 THERE ARE 22 CAPLUS RECORDS THAT CITE THIS RECORD (34 CITINGS)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L87 ANSWER 2 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2007:702516 HCAPLUS Full-text  
 DOCUMENT NUMBER: 147:98708  
 TITLE: Construction of a solid oxide fuel cell stack with gas distribution structures  
 INVENTOR(S): Kuhn, Bernd  
 PATENT ASSIGNEE(S): Bayerische Motoren Werke A.-G., Germany  
 SOURCE: Ger. Offen., 10pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 102005061585	A1	20070628	DE 2005-102005061585	2005 1222
US 20070148516	A1	20070628	US 2006-640996	2006 1219
PRIORITY APPLN. INFO.:			DE 2005-102005061585A	2005 1222

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## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 29 Jun 2007

AB The invention concerns a solid fuel cell stack, which is provided with single cells, which are optionally arranged with contact layers between a top shell and a gastight-connected lower shell in the boundary region. Furthermore gas distributor structures are provided in each case between the top panel of a 1st single cell and the lower shell of this neighboring single cell, so that breakthroughs are located over these gas distributor structures and in the top panel as well as the lower shell in the range within the edges. In such a manner a gas passage to the turned side of the single cell is possible, whereby each single cell consists of a substrate with on that applied anode layer, solid electrolyte layer and cathode layer and whereby a tension compensation layer provided with breaking through is applied in the operating temperature range of the fuel cell on the electrode layers and the electrolyte layer opposite side of the substrate. Preferably the top shell and the lower shell are similar and twisted arranged in the stack. IPCI H01M0008-02 [I,A]

IPCR H01M0008-02 [I,C]; H01M0008-02 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid oxide fuel cell

stack construction gas distribution structure

IT Fuel cells

(solid oxide; construction with gas distribution structures)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L87 ANSWER 3 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2007:1671057 HCAPLUS Full-text  
 DOCUMENT NUMBER: 147:75904

TITLE: Solid oxide fuel  
 cell having multiple unit  
 cells separated via  
 thermoconductive dielectric partitions  
 for uniform temperature distribution  
 INVENTOR(S): Murota, Tomoya; Tokoi, Hiromi; Takahashi,  
 Kokoro; Gunji, Akira  
 PATENT ASSIGNEE(S): Hitachi Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 11pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 2007157424	A	20070621	JP 2005-349078	2005 1202 ---
JP 2005-349078 2005 1202 ---				

ED    Entered STN: 21 Jun 2007

AB    The title cell comprises a plurality of unit cells, wherein the adjacent cells are separated from each other by an elec. insulating partition. The partition is composed of an elec. insulating member (M1) and a thermoconductive member (M2) having a higher thermal conductivity than the M1. In another embodiment, the title cell comprises a plurality of cell assemblies held in a gas-tight container, each assembly having a solid oxide electrolyte held between an anode and cathode. These assemblies are connected to each other via a partition of the above structure coated with a current collector plate on each side. The above cell may have an assembly-supporting member (M3) disposed between at least one of the unit cells and the partitions, wherein the partitions comprise thermoconductive members sandwiched by metal felts and elec. insulating members sandwiching the felts for portions contacting to N3 and the thermoconductive members for the other portions. Fuel cells with no temperature variation in the longitudinal direction are provided with this invention. IPCI H01M0008-24 [I,A]; H01M0008-12 [I,A];  
 IPCR H01M0008-24 [I,C]; H01M0008-24 [I,A]; H01M0008-12 [I,C];  
 H01M0008-12 [I,A]

CC    52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST    solid oxide fuel cell unit  
 thermal conductor partition; uniform temp  
 distribution fuel cell dielec thermoconductive  
 partition

IT    Metals

RL: TEM (Technical or engineered material use); USES (Uses)  
 (felts, partition containing; solid  
 oxide fuel cells having  
 multiple unit cells separated via  
 thermoconductive dielec. partitions for  
 uniform temperature distribution)

IT    Felts

RL: (metals, partition containing; solid  
 oxide fuel cells having  
 multiple unit cells separated via  
 thermoconductive dielec. partitions for  
 uniform temperature distribution)

IT    Electric insulators

Thermal conductors  
 (solid oxide fuel cells  
 having multiple unit cells separated  
 via thermoconductive dielec. partitions for  
 uniform temperature distribution)

IT    Fuel cells

(solid oxide; solid oxide  
fuel cells having multiple unit  
cells separated via thermoconductive dielec.  
partitions for uniform temperature distribution)

L87 ANSWER 4 OF 30 HCPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2007:88288 HCPLUS Full-text  
DOCUMENT NUMBER: 1461:146037  
TITLE: Honeycomb solid oxide  
fuel cell  
INVENTOR(S): Kashiwabara, Takenori  
PATENT ASSIGNEE(S): Kikusui Chemical Industries Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokyo Koho, 9pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	-----	-----	-----
JP 2007018865	A	20070125	JP 2005-198888	2005 0707
<--				
PRIORITY APPLN. INFO.:		JP 2005-198888		
2005 0707				
<--				

ED Entered STN: 26 Jan 2007

AB The fuel cell is equipped with honeycomb solid electrolyte structure showing air tightness to give a plurality of first gas passages, a plurality of second gas passages, an electrode facing to the first gas passages, and an electrode facing to the second gas passages. The fuel cell has a plurality of electrochem. unit cells arranged on the same flat surface, where the cell unit consists of a first gas passage, a second gas passage, a first electrode, a second electrode, a first electrode terminal connected to end of the first electrode, and a second electrode terminal opposing to the first electrode terminal. Neighboring 2 unit cells are series connected at the first electrode terminal or the second electrode terminal. The fuel cell provides high power output per unit area.

IPC1 H01M0008-02 [I,A]; H01M0008-12 [I,A]

IPC2 H01M0008-02 [I,C]; H01M0008-02 [I,A]; H01M0008-12 [I,C];

H01M0008-12 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST honeycomb solid oxide fuel  
cell

IT Fuel cells  
(solid oxide; honeycomb solid  
oxide fuel cell)

L87 ANSWER 5 OF 30 HCPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2006:1311136 HCPLUS Full-text  
DOCUMENT NUMBER: 146:47863  
TITLE: Flat-shape solid oxide  
fuel cell equipped  
with two mechanisms for separately  
compressing unit cells and manifolds  
INVENTOR(S): Sugita, Satoshi; Arai, Hajime; Arakawa,  
Masahiro  
PATENT ASSIGNEE(S): Nippon Telegraph and Telephone Corp., Japan  
SOURCE: Jpn. Kokai Tokyo Koho, 13pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

## 10/561,789-347144-EIC SEARCH

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006339035	A	20061214	JP 2005-162490	
				2005
				0602
JP 4291299	B2	20090708	JP 2005-162490	
PRIORITY APPLN. INFO.:				2005
				0602
				<--

ED Entered STN: 15 Dec 2006

AB The title cell comprises alternately stacked flat-shape unit fuel cells and interconnectors, each unit cell comprising a flat electrolyte membrane sandwiched in between a cathode and anode, and manifolds for supplying or discharging a fuel or oxidant gas. It is equipped with a 1st means, for compression of the cell stack, and a 2nd means, for compression of the manifolds. Preferably, the manifolds are made of alternate laminates of metal members and an elec. insulating manifold connectors, under optional insertion of glass having a m.p. lower than the cell stack heat-resisting temperature, etc. The first mechanism improves adhesion between the unit cells and reduces power transmission loss at the connections, and the second mechanism improves gas sealing capability of the manifolds to prevent gas leakage.

IPCI H01M0008-24 [I,A]; H01M0008-02 [I,A]; H01M0008-12 [I,A];  
H01M0008-24 [I,A]; H01M0008-02 [I,A]; H01M0008-12 [I,A]

IPCR H01M0008-24 [I,C]; H01M0008-24 [I,A]; H01M0008-02 [I,C];  
H01M0008-02 [I,A]; H01M0008-12 [I,C]; H01M0008-12 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST SOFC manifold cell stack sep compression  
mechanism; manifold sealing flat solid  
oxide fuel cell

IT Compression  
(flat SOFC with sep. compression mechanisms  
for secure sealing of manifolds and  
connection of unit cells)

IT Ceramics  
(manifold connector; flat SOFC with  
sep. compression mechanisms for secure sealing  
of manifolds and connection of unit cells)

IT Mica-group minerals  
RL: TEM (Technical or engineered material use); USES (Uses)  
(manifold connector; flat SOFC with  
sep. compression mechanisms for secure sealing  
of manifolds and connection of unit cells)

IT Solders  
(sealing of manifolds with their connectors  
with; flat SOFC with sep. compression  
mechanisms for secure sealing of manifolds and  
connection of unit cells)

IT Glass  
RL: TEM (Technical or engineered material use); USES (Uses)  
(sealing of manifolds with their connectors  
with; flat SOFC with sep. compression  
mechanisms for secure sealing of manifolds and  
connection of unit cells)

IT Fuel cells  
(solid oxide; flat SOFC with  
sep. compression mechanisms for secure sealing  
of manifolds and connection of unit cells)

IT 12033-89-5, Silicon nitride, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(compression spring; flat SOFC with sep.  
compression mechanisms for secure sealing of  
manifolds and connection of unit cells)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE  
THIS RECORD (1 CITINGS)

L87 ANSWER 6 OF 30 HCPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2006:49538 HCPLUS [Full-text](#)  
 DOCUMENT NUMBER: 144:111338  
 TITLE: Solid oxide fuel  
 cells with high current collection,  
 units therefor, and cell stacks therefrom  
 INVENTOR(S): Yamashita, Shoji; Nishihara, Masato;  
 Matsuzaki, Yoshio; Fujita, Kenjiro  
 PATENT ASSIGNEE(S): Kyocera Corp., Japan; Tokyo Gas Co., Ltd.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	-----	-----	-----
JP 2006019059	A	20060119	JP 2004-193134	2004 0630
<--				
PRIORITY APPLN. INFO.:		JP 2004-193134		
		2004 0630		
<--				

ED Entered STN: 19 Jan 2006

AB In the units, plural elec. generation units (A) consisting of laminates of anodes, solid electrolytes, and cathodes are arranged on surfaces of fuel gas path-equipped columnar insulator supports and tandemly interconnected via interconnectors, which in nearest to (farthest from) fuel gas manifolds have thickness larger than that of other ones. Also claimed are cell stacks, wherein plural number of the units are elec. interconnected, and fuel cells containing the stacks in cases. IPCI H01M0008-02 [I,A]; H01M0008-12 [I,A]; H01M0008-24 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid oxide fuel cell  
 current collection efficiency; tandem interconnection  
 thickness solid oxide fuel  
 cell

IT Interconnections, electric  
 (elec. interconnector-equipped tandem units  
 for solid oxide fuel  
 cells with high current collection)

IT Fuel cells  
 (solid oxide; elec. interconnector  
 -equipped tandem units for solid  
 oxide fuel cells with high current  
 collection)

L87 ANSWER 7 OF 30 HCPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2005:1152738 HCPLUS [Full-text](#)

DOCUMENT NUMBER: 143:408213  
 TITLE: Solid oxide fuel  
 cell stack with a bipolar conductor  
 structure instead of bipolar plates

INVENTOR(S): Leithner, Reinhard  
 PATENT ASSIGNEE(S): Technische Universitaet Braunschweig, Germany  
 SOURCE: Ger. Offen., 12 pp.

CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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DE 102004015660 A1 20051027 DE 2004-102004015660  
 2004  
 0331  
 <--  
 PRIORITY APPLN. INFO.: DE 2004-102004015660  
 2004  
 0331  
 <--

ED Entered STN: 28 Oct 2005

AB The invention concerns a solid oxide fuel cell (SOFC) stack, which is provided with a conductor structure instead of bipolar plates and whereby the elec.-insulated anode layer of a section on the top side of a solid electrolyte plate is elec.-conductive connected with an elec.-insulated cathode layer of the adjacent section on the lower surface of the same solid electrolyte plate. The stacked sections are switched elec. parallel according to the strength of current, and adjacent sections are switched in series, whereby a tension multiplication is obtained. A section is provided with at least a channel, generally several channels, which are passed by the fuel gas, air/O<sub>2</sub> or cooling fluid or a reforming gas/steam mixture IPCI HO1M0008-10 [ICM,7]; HO1M0008-02 [ICS,7]  
 IPCR HO1M0008-02 [I,C\*]; HO1M0008-02 [I,A]; HO1M0008-10 [I,C\*];  
 HO1M0008-10 [I,A]; HO1M0008-12 [N,C\*]; HO1M0008-12 [N,A];  
 HO1M0008-24 [I,C\*]; HO1M0008-24 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid oxide fuel cell

IT stack bipolar conductor structure

IT Crystal structure types  
 (C1 (fluorite); of solid oxide  
 electrolyte for fuel cell stack  
 with a bipolar conduction structure instead of bipolar  
 plates)

IT Vapor deposition process  
 (chemical; solid oxide fuel  
 cell stack with a bipolar conductor structure instead  
 of bipolar plates)

IT Perovskite-type crystals  
 (of solid oxide electrolyte for  
 fuel cell stack with a bipolar conduction  
 structure instead of bipolar plates)

IT Coating process  
 (plating; solid oxide fuel  
 cell stack with a bipolar conductor structure instead  
 of bipolar plates)

IT Sputtering  
 (solid oxide fuel cell  
 stack with a bipolar conductor structure instead of bipolar  
 plates)

IT Fuel cells  
 (solid oxide; stack with a bipolar  
 conductor structure)

IT 1313-99-1, Nickel oxide, uses  
 RL: PEP (Physical, engineering or chemical process); PYP (Physical  
 process); TEM (Technical or engineered material use); PROC  
 (Process); USES (Uses)  
 (anode layer for solid oxide  
 fuel cell stack with a bipolar conductor  
 structure)

IT 7440-24-6, Strontium, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (in cathode layer for solid oxide  
 fuel cell stack with a bipolar conductor  
 structure)

IT 7440-65-5, Yttrium, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (solid oxide electrolyte  
 plate for fuel cell stack with a  
 bipolar conductor structure)

IT 58438-69-0

RL: MOA (Modifier or additive use); USES (Uses)  
 (strontium-doped; cathode layer for solid  
 oxide fuel cell stack with a  
 bipolar conductor structure)

IT 1314-23-4, Zirconia, uses  
 RL: PEP (Physical, engineering or chemical process); PYP (Physical  
 process); TEM (Technical or engineered material use); PROC  
 (Process); USES (Uses)  
 (yttrium-doped; solid oxide  
 electrolyte plate for fuel  
 cell stack with a bipolar conductor structure)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE  
 THIS RECORD (1 CITINGS)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L87 ANSWER 8 OF 30 HCPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 20051155488 HCPLUS Full-text  
 DOCUMENT NUMBER: 142:243604  
 TITLE: Solid electrolyte fuel-  
 cell device  
 INVENTOR(S): Horiuchi, Michio; Watanabe, Misa; Suganuma,  
 Shigeaki  
 PATENT ASSIGNEE(S): Shinko Electric Co. Ltd., Japan  
 SOURCE: Eur. Pat. Appl., 15 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1508932	A2	20050223	EP 2004-254973	2004 0818
EP 1508932	A3	20051228		<--
EP 1508932	B1	20081126		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, NC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
JP 2005071628	A	20050317	JP 2003-208426	2003 0822
JP 4405196	B2	20100127		<--
CA 2478005	A1	20050222	CA 2004-2478005	2004 0818
US 20050042491	A1	20050224	US 2004-921313	2004 0819
PRIORITY APPLN. INFO.: JP 2003-208426 A 2003 0822				

ED Entered STN: 24 Feb 2005

AB The present invention relates to a solid electrolyte fuel-cell device wherein a plurality of fuel cells are formed on a single plate. A plurality of cathode layers are formed on one surface of the flat plate-like solid electrolyte substrate, and a plurality of anode layers on the opposite surface thereof, and each fuel cell is formed from a cathode layer and anode layer. An electromotive force extracting lead wire is

attached to the cathode layer, and a lead wire is attached to the anode layer. The plurality of fuel cells are connected in series by elec. connecting the cathode layer of one fuel cell to the anode layer of an adjacent fuel cell. Flames formed by combustion of a fuel such as a methane gas are supplied to the entire surface of each anode layer, and air is supplied to each cathode layer.

IPC1 H01M0008-12 [I,C]; H01M0008-12 [I,A]  
 IPC2 H01M0008-02 [I,C\*]; H01M0008-02 [I,A]; H01M0008-12 [I,C];  
 H01M0008-12 [I,A]; H01M0008-10 [I,C\*]; H01M0008-10 [I,A];  
 H01M0008-24 [I,C\*]; H01M0008-24 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST fuel cell device solid electrolyte  
 IT Fuel cell electrolytes  
 (solid electrolyte fuel-cell device)  
 IT Fuel cells  
 (solid electrolyte; solid electrolyte fuel-cell device)  
 IT 12035-36-8, Nickel oxide (NiO<sub>2</sub>)  
 RL: DEV (Device component use); USES (Uses)  
 (Li-doped; solid electrolyte fuel-cell device)  
 IT 7439-93-2, Lithium, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (NiO<sub>2</sub> doped with; solid electrolyte fuel-cell device)  
 IT 59989-70-7, Cobalt samarium strontium oxide  
 cosm0.5sr0.5o3 116875-84-4, Cerium samarium oxide  
 (Ce0.85sm0.201.9)  
 RL: DEV (Device component use); USES (Uses)  
 (solid electrolyte fuel-cell device)  
 IT 12036-35-0, Rhodium oxide (Rh2O<sub>3</sub>)  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (solid electrolyte fuel-cell device)  
 IT 74-82-8, Methane, uses 106-97-8, Butane, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (solid electrolyte fuel-cell device)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)  
 REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L87 ANSWER 9 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2005:57688 HCAPLUS Full-text  
 DOCUMENT NUMBER: 142:159521  
 TITLE: Stacked structure for solid-oxide fuel cells  
 INVENTOR(S): Sugita, Satoshi; Orui, Himeko; Watabe, Masataka; Arakawa, Masahiro  
 PATENT ASSIGNEE(S): Nippon Telegraph and Telephone Corp., Japan  
 SOURCE: Jpn. Kokai Tokyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005019268	A	20050120	JP 2003-183948	2003 0627

PRIORITY APPLN. INFO.:

JP 2003-183948

2003  
0627

ED Entered STN: 21 Jan 2005

AB The title fuel cells comprise (1) a pl. number of planar fuel cell units comprising an electrolyte, a fuel electrode, and an air electrode and (2) an interconnector elec.- connecting between cell units, (3) gas flowing channels feeding the fuel and the air into each cell, and (4) elec.-insulative cell holders which have a thermal expansion coefficient similar to that of the cells, sep. fed fuel and oxidant gas, and provide leveled surface to make holder- interconnector interface thermal-stress-caused sliding between adjacent cells. The arrangement makes possible stable formation of the stacks.

IPC1 H01M0008-24 [ICM,7]; H01M0008-02 [ICS,7]; H01M0008-12 [ICS,7]

IPC2 H01M0008-02 [I,A]; H01M0008-02 [I,C\*]; H01M0008-12 [I,A]; H01M0008-12 [I,C\*]; H01M0008-24 [I,A]; H01M0008-24 [I,C\*]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid oxide fuel cell

stack holder interconnector sliding interface

IT Ceramics

(cell holders; stacked structure for solid-oxide fuel cells)

IT Holders

(cell; stacked structure for solid-oxide fuel cells)

IT Electrodes

(fuel/oxidant; stacked structure for solid-oxide fuel cells)

IT Fuel cells

(solid oxide stacked; stacked structure for solid-oxide fuel cells)

IT Electrolytes

Thermal expansion  
(stacked structure for solid-oxide fuel cells)

IT Stress, mechanical

(thermal; stacked structure for solid-oxide fuel cells)

IT 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 12060-08-1, Scandium oxide (Sc2O3)

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)  
(electrolyte composition; stacked structure for solid-oxide fuel cells)

L87 ANSWER 10 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:741988 HCAPLUS Full-text

DOCUMENT NUMBER: 1411:246108

TITLE: Unit cell for fuel cell and the fuel cell

INVENTOR(S): Marutani, Kazumasa; Hamada, Noriaki

PATENT ASSIGNEE(S): Kyocera Corp., Japan

SOURCE: Jpn. Kokai Tokyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004253279	A	20040909	JP 2003-43169	2003 0220
JP 4028809	B2	20071226		<--

PRIORITY APPLN. INFO.:

JP 2003-43169

2003  
0220

&lt;--

ED Entered STN: 10 Sep 2004

AB The unit cell has an inner electrode, a solid electrolyte, and an outer electrode on a 1st side of a conductive support plate an interconnector on the opposite side of the plate, with the electrolyte layer extends from the 1st side to cover the edge of the opposite side; where the sum of the thickness of the edge of the support plate, the inner electrode, and the electrolyte is greater than the sum of the thickness of the support plate, the inner electrode, and the electrolyte layer. The fuel cell has several unit cells in a container.

IPC1 H01M0008-02 [I,A]; H01M0008-12 [I,A]

IPCR H01M0008-02 [I,A]; H01M0008-02 [I,C\*]; H01M0008-12 [I,A];

H01M0008-12 [I,C\*]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST planar solid electrolyte fuel cell  
structure

IT Fuel cells

(solid oxide; structure of planar unit  
cells for solid oxide fuel  
cells)

L87 ANSWER 11 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:720388 HCAPLUS Full-text

DOCUMENT NUMBER: 141:246061

TITLE: Solid oxide fuel  
cellINVENTOR(S): Funabashi, Yoshihiro; Ishikawa, Hiroya;  
Hattori, Masaaki

PATENT ASSIGNEE(S): NGK Spark Plug Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokyo Koho, 15 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004247174	A	20040902	JP 2003-35718	2003 0213

&lt;--

PRIORITY APPLN. INFO.: JP 2003-35718

2003  
0213

&lt;--

ED Entered STN: 03 Sep 2004

AB The fuel cell has unit cells stacked alternately with metal separators, where each unit cell has a cathode and an anode on opposite sides of an electrolyte and a collector installed between its cathode and a separator, and the collector is connected to the separator by a solder. The solder is preferably a Ag based solder.

IPC1 H01M0008-02 [ICM,7]; H01M0008-12 [ICS,7]

IPCR H01M0008-02 [I,A]; H01M0008-02 [I,C\*]; H01M0008-12 [I,A];

H01M0008-12 [I,C\*]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid oxide fuel cell  
cathode metal separator silver solder

IT Fuel cells

(solid oxide; solid oxide  
fuel cells containing cathodes  
connected to metal separators by silver  
solders)IT 7440-06-4, Platinum, uses 11109-52-7, Sus 430 12606-04-1,  
Inconel 610 59707-46-9, Lanthanum strontium manganate  
110620-52-5, Cobalt lanthanum strontium oxide

(CoLa0.6Sr0.4O3) 148595-66-8, Cobalt iron lanthanum strontium oxide (Co0.2Fe0.8La0.6Sr0.4O3)

RL: DEV (Device component use); USES (Uses)  
 (solid oxide fuel cells  
 containing cathodes connected to metal  
 separators by silver solders)

IT 126102-72-5

RL: NUU (Other use, unclassified); USES (Uses)  
 (solid oxide fuel cells  
 containing cathodes connected to metal  
 separators by silver solders)

L87 ANSWER 12 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:352021 HCAPLUS Full-text

DOCUMENT NUMBER: 140:360302

TITLE: Solid polymer-electrolyte  
 fuel cell stacks designed  
 capable of easily discharging water

INVENTOR(S): Sato, Shuji; Yoshida, Hiromichi

PATENT ASSIGNEE(S): Honda Motor Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004134130	A	20040430	JP 2002-295198	2002 1008
<--				
JP 3673252	B2	20050720	JP 2002-295198	2002 1008
<--				
PRIORITY APPLN. INFO.:				

ED Entered STN: 30 Apr 2004

AB The stack, comprising horizontally and alternately laminated electrode-electrolyte layers and separators, is equipped with an oxidizer-gas- discharging manifold as an outlet, and a downward-sloped discharge pipe connected with the manifold, wherein a bypass pipe is so formed as to connect the manifold and the discharge pipe in such a way that the position of opening is higher at the manifold side. The fuel cell stacks show durable power generating efficiency.

IPC1 H01M0008-24 [ICM,7]; H01M0008-10 [ICS,7]

IPC2 H01M0008-10 [I,A]; H01M0008-10 [I,C\*]; H01M0008-24 [I,A];  
 H01M0008-24 [I,C\*]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid polymer electrolyte fuel cell  
 water discharge

IT Fuel cells  
 (solid electrolyte, polymer electrolyte;  
 solid polymer-electrolyte fuel cell  
 stacks designed capable of easily discharging water)

IT Waters  
 (solid polymer-electrolyte fuel  
 cell stacks designed capable of easily  
 discharging water)

IT 7782-44-7, Oxygen, miscellaneous

RL: MSC (Miscellaneous)  
 (oxidizer, discharge of; solid  
 polymer-electrolyte fuel cell  
 stacks designed capable of easily discharging water)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE  
 THIS RECORD (1 CITINGS)

L87 ANSWER 13 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2004:219408 HCAPLUS Full-text  
 DOCUMENT NUMBER: 140:256295  
 TITLE: Solid oxide fuel  
 cell  
 INVENTOR(S): Hiwata, Kenichi  
 PATENT ASSIGNEE(S): Toto Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 21 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004087490	A	20040318	JP 2003-288038	2003 0806
JP 4524791	B2	20100818	JP 2002-228344	A 2002 0806

PRIORITY APPLN. INFO.:

ED Entered STN: 19 Mar 2004  
 AB The fuel cell has an electrolyte membrane, a cathode and an anode on opposite sides of the electrolyte membrane, and interconnectors; where the electrolyte membrane has at least a Sc and Y solid solution containing  $ZrO_2$  layer, and particles on the membrane surface has diams.  $\geq 3$  and  $\leq 50$   $\mu m$  at 3 % at its size distribution pattern. IPCI H01M0008-02 [I,A]; C04B0035-48 [I,A]; H01M0008-12 [I,A]; IPCR C04B0035-48 [I,A]; C04B0035-48 [I,C\*]; H01M0004-86 [I,C\*]; H01M0008-02 [I,A]; H01M0008-02 [I,C\*]; H01M0008-12 [I,A]; H01M0008-12 [I,C\*]  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST scandium yttrium zirconium oxide fuel cell  
 electrolyte particle size  
 IT Fuel cell electrolytes  
 (scandium oxide and yttria stabilized zirconia  
 electrolytes with controlled particle size  
 distribution for solid oxide fuel  
 cells)  
 IT 122219-13-0, Scandium yttrium zirconium oxide  
 (Sc0.08Y0.08Zr0.92Zr0.08) 656820-29-0, Scandium yttrium zirconium  
 oxide (Sc0.04Y0.16Zr0.90Zr0.1) 671180-90-8, Scandium yttrium  
 zirconium oxide (Sc0.1Y0.1Zr0.90Zr0.1) 671180-91-9, Scandium  
 yttrium zirconium oxide (Sc0.03Y0.03Zr0.97Zr0.03) 671180-92-0,  
 Scandium yttrium zirconium oxide (Sc0.06Y0.06Zr0.94Zr0.06)  
 671180-93-1, Scandium yttrium zirconium oxide  
 (Sc0.12Y0.12Zr0.88Zr0.12) 671180-94-2, Scandium yttrium zirconium  
 oxide (Sc0.02Y0.02Zr0.98Zr0.02) 671180-95-3, Scandium yttrium  
 zirconium oxide (Sc0.15Y0.15Zr0.85Zr0.15) 671180-96-4, Scandium  
 yttrium zirconium oxide (Sc0.14Y0.06Zr0.90Zr0.1) 671180-97-5,  
 Scandium yttrium zirconium oxide (Sc0.18Y0.02Zr0.90Zr0.1)  
 671180-98-6, Scandium yttrium zirconium oxide  
 (Sc0.03Y0.17Zr0.90Zr0.1) 671180-99-7, Scandium yttrium zirconium  
 oxide (Sc0.19Y0.01Zr0.90Zr0.1) 671181-00-3, Cerium scandium  
 yttrium zirconium oxide (Ce0.01Sc0.1Y0.1Zr0.89Zr0.1) 671181-01-4,  
 Cerium scandium yttrium zirconium oxide  
 (Ce0.05Sc0.1Y0.1Zr0.85Zr0.1) 671181-02-5, Cerium scandium yttrium  
 zirconium oxide (Ce0.06Sc0.1Y0.1Zr0.84Zr0.1) 671181-03-6, Bismuth  
 scandium yttrium zirconium oxide (Bi0.02Sc0.1Y0.1Zr0.89Zr0.11)  
 671181-04-7, Bismuth scandium yttrium zirconium oxide  
 (Bi0.1Sc0.1Y0.1Zr0.85Zr0.15) 671181-05-8, Bismuth scandium

yttrium zirconium oxide (Bi<sub>0.06</sub>Sc<sub>0.1</sub>Y<sub>0.1</sub>Zr<sub>0.84</sub>O<sub>2.16</sub>)  
 671181-06-9, Bismuth scandium yttrium zirconium oxide  
 (Bi<sub>0.01</sub>Sc<sub>0.1</sub>Y<sub>0.1</sub>Zr<sub>0.89</sub>O<sub>2.1</sub>) 671181-0  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (scandium oxide and yttria stabilized zirconia  
 electrolytes with controlled particle size  
 distribution for solid oxide fuel  
 cells)

L87 ANSWER 14 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:912674 HCAPLUS Full-text  
 DOCUMENT NUMBER: 139:367592  
 TITLE: Solid oxide fuel  
 cell with a metal foam seal  
 INVENTOR(S): Keegan, Kevin R.  
 PATENT ASSIGNEE(S): USA  
 SOURCE: U.S. Pat. Appl. Publ., 10 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20030215689	A1	20031120	US 2002-147406	2002 0516
WO 2003098729	A1	20031127	WO 2003-US14310	2003 0507
<--				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
PRIORITY APPLN. INFO.: US 2002-147406 A				
2002 0516				
<--				

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 21 Nov 2003

AB Disclosed herein are a solid oxide fuel cell and a method for making the same. In one embodiment, the solid oxide fuel cell comprises: a solid oxide fuel cell, comprising: an electrolyte disposed between and in ionic communication with a first electrode and a second electrode, forming an electrochem. cell; a flow plate disposed adjacent to and in elec. communication with at least a portion of the electrochem. cell; and a seal member sealably engaging the flow plate, wherein the seal member comprises a foam selected from the group consisting of a metal, a metal alloy, and combinations comprising at least one of the foregoing foams. In one embodiment, the method of manufacturing the solid oxide fuel cell, comprises: disposing a first electrode and a second electrode on opposite sides of a solid electrolyte; disposing a flow plate adjacent to and in elec. communication with at least a portion of the electrochem. cell; and disposing the seal member in sealable engagement with the flow plate.

INCL 429035000; 429030000; 029623200

IPCI H01M0008-02 [ICM,7]; H01M0002-08 [IIC,7]

IPCR H01M0002-00 [I,C\*]; H01M0002-00 [I,A]; H01M0002-02 [I,C\*];

H01M0002-02 [I,A]; H01M0002-08 [I,C\*]; H01M0002-08 [I,A];

H01M0002-14 [I,C\*]; H01M0002-14 [I,A]; H01M0008-00 [I,C\*];

H01M0008-00 [I,A]; H01M0008-02 [I,C\*]; H01M0008-02 [I,A];

H01M0008-10 [I,C\*]; H01M0008-10 [I,A]; H01M0008-12 [N,C\*];

H01M0008-12 [N,A]

NCL 429/495.000; 429/623.200; 429/509.000; 429/514.000; 429/535.000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 56

ST seal metal foam solid oxide  
 fuel cell  
 IT Group VIII elements  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (Group 8; solid oxide fuel  
 cell with metal foam seal)  
 IT Interconnections, electric  
 (flow plate; solid oxide  
 fuel cell with metal foam seal)  
 IT Foams  
 (metal; solid oxide fuel  
 cell with metal foam seal)  
 IT Cermets  
 Composites  
 Gaskets  
 Seals (parts)  
 (solid oxide fuel cell  
 with metal foam seal)  
 IT Alloys, uses  
 Hydrides  
 Oxides (inorganic), uses  
 Salts, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (solid oxide fuel cell  
 with metal foam seal)  
 IT Fuel cells  
 (solid oxide; solid oxide  
 fuel cell with metal foam seal)  
 IT 7429-90-5, Aluminum, uses 7439-91-0, Lanthanum, uses  
 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4,  
 Platinum, uses 7440-22-4, Silver, uses 7440-24-6, Strontium,  
 uses 7440-32-6, Titanium, uses 7440-47-3, Chromium, uses  
 7440-50-8, Copper, uses 7440-57-5, Gold, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (solid oxide fuel cell  
 with metal foam seal)  
 OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE  
 THIS RECORD (1 CITINGS)

L87 ANSWER 15 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2003:677266 HCAPLUS Full-text  
 DOCUMENT NUMBER: 140:62194  
 TITLE: Patterned series-connected  
 SOFC  
 AUTHOR(S): Lai, Tammy; Liu, Jiang; Barnett, Scott A.  
 CORPORATE SOURCE: Materials Science and Engineering Department,  
 Northwestern University, Evanston, IL, 60208,  
 USA  
 SOURCE: Proceedings - Electrochemical Society (2003), 2003-7(Solid Oxide Fuel Cells VIII (SOFC VIII)), 1068-1076  
 CODEN: PESODD; ISSN: 0161-6374  
 PUBLISHER: Electrochemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 29 Aug 2003  
 AB Integrated solid oxide fuel  
 cells (ISOFC) are small, thin-electrolyte cells connected in series on a porous  
 insulating support. Statistically designed expts. have shown that supports made from  
 partially stabilized zirconia using 15 wt% filler have a good combination of porosity  
 and flexural strength. Conductivity measurements of thin-layer Ni-YSZ anode material  
 show excellent conductivity. Similar tests on La<sub>0.65</sub>Sr<sub>0.4</sub>Fe<sub>0.8</sub>Co<sub>0.2</sub>O<sub>3</sub> (LSCF)-based  
 cathode materials show that applying layers of pure LSCF over the base of LSCF-  
 Ce<sub>0.9</sub>Gd<sub>0.1</sub>O<sub>2</sub> greatly improves conductivity. An initial 4-cell ISOFC stack was shown to  
 have a power d. of ≈ 60 mW/cm<sup>2</sup> at 700°C, which can be improved in the future by using a

more conductive cathode. A simple elec. model is used to explain the exptl. observed stack performance.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST Section cross-reference(s): 72, 76

IT patterned series connected SOFC stack

IT Electric current-potential relationship

Open circuit potential  
(patterned series-connected SOFC stacks)

IT Fuel cells  
(solid oxide; patterned series-connected SOFC stacks)

IT 1313-99-1, Nickel oxide (NiO), uses 7440-22-4, Silver, uses 108916-22-9, Lanthanum manganese strontium oxide (La<sub>0.8</sub>MnSr<sub>0.2</sub>O<sub>3</sub>) 148595-66-8, Cobalt iron lanthanum strontium oxide (Co<sub>0.2</sub>Fe<sub>0.8</sub>La<sub>0.6</sub>Sr<sub>0.4</sub>O<sub>3</sub>) 183546-68-1, Cerium gadolinium oxide (Ce<sub>0.9</sub>Gd<sub>0.1</sub>O<sub>2</sub>) 403694-09-7, YSZ 639506-73-3

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)  
(patterned series-connected SOFC stacks)

IT 64-17-5, Ethanol, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(patterned series-connected SOFC stacks)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L87 ANSWER 16 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 2002:867304 HCAPLUS Full-text  
DOCUMENT NUMBER: 137:372548  
TITLE: Small-sized solid electrolyte  
fuel cells and their  
manufacture  
INVENTOR(S): Shibata, Itaru; Hara, Naoki; Hatano, Shoji;  
Yamanaka, Mitsugu; Uchiyama, Makoto  
PATENT ASSIGNEE(S): Nissan Motor Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokyo Koho, 11 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2002329508	A	20021115	JP 2001-134695	2001 0501
<--				
PRIORITY APPLN. INFO.:		JP 2001-134695		
		2001 0501		
<--				

ED Entered STN: 15 Nov 2002

AB The fuel cell unit comprises a laminate of an air electrode, solid electrolyte, and a fuel electrode which its side is covered with an elec. insulating and gas-impermeable material and which is sandwiched in between a pair of porous metal collectors which permeates fuel gas and oxidized gas. Fuel cells (A) comprising the said unit having an elec. conductive gas-impermeable layer laminated on either one of the collectors, (B) comprising the said unit stacked in a manner that the air or the fuel electrodes of the neighboring unit cell is connected via a porous metal collector, or (C) comprising multiple nos. of cylinder-shaped electrode/ electrolyte laminate inserted in holes formed in a porous metal collector matrix, with the cylinder inside equipped with the opposing collector, are also claimed. The fuel cells have small internal resistance. IPC1 H01M0008-02 [ICM,7]; H01M0008-02 [ICS,7]; H01M0004-86 [ICS,7];

H01M0004-88 [ICM,7]; H01M0008-12 [ICM,7]; H01M0008-24 [ICM,7]  
IPC1 H01M0004-86 [I,C\*]; H01M0004-86 [I,A]; H01M0004-88 [I,C\*];

HO1M0004-88 [I,A]; HO1M0008-02 [I,C\*]; HO1M0008-02 [I,A];  
 HO1M0008-12 [I,C\*]; HO1M0008-12 [I,A]; HO1M0008-24 [I,C\*];  
 HO1M0008-24 [I,A]  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST solid electrolyte fuel cell small  
 size manuf  
 IT Ceramics  
 (gas-impermeable insulator; manufacture of small-sized  
 solid electrolyte fuel cells with  
 low internal resistance)  
 IT Glass, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (gas-impermeable insulator; manufacture of small-sized  
 solid electrolyte fuel cells with  
 low internal resistance)  
 IT Electric insulators  
 (gas-permeable; manufacture of small-sized solid electrolyte  
 fuel cells with low internal resistance)  
 IT Porous materials  
 (metals, electrode collectors; manufacture of small-sized  
 solid electrolyte fuel cells with  
 low internal resistance)  
 IT Fuel cells  
 (solid electrolyte; manufacture of small-sized solid  
 electrolyte fuel cells with low  
 internal resistance)  
 IT 1314-36-9, Yttria, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (-stabilized zirconia, solid electrolyte; manufacture of  
 small-sized solid electrolyte fuel  
 cells with low internal resistance)  
 IT 7440-22-4, Silver, uses 11102-90-2, Copper, nickel base  
 12619-49-7 12667-63-9 39325-34-3 42611-06-3 68394-17-2  
 70409-48-2  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (electrode collector; manufacture of small-sized solid  
 electrolyte fuel cells with low  
 internal resistance)  
 IT 39377-48-5, Cobalt lanthanum strontium oxide  
 114168-16-0, Yttrium zirconium oxide (Y0.16Zr0.92O2.08)  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (electrode; manufacture of small-sized solid  
 electrolyte fuel cells with low  
 internal resistance)  
 IT 7440-02-0, Nickel, uses 12649-91-1 12756-52-4 55782-25-7  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (porous electrode collector; manufacture of small-sized  
 solid electrolyte fuel cells with  
 low internal resistance)  
 IT 1314-23-4, Zirconia, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (yttria-stabilized, solid electrolyte; manufacture of  
 small-sized solid electrolyte fuel  
 cells with low internal resistance)  
 OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE  
 THIS RECORD (4 CITINGS)

L87 ANSWER 17 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2002:353785 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 1361:343381  
 TITLE: Improved solid oxide  
 fuel cells  
 INVENTOR(S): Thomas, George J.; Meacham, G. B. Kirby  
 PATENT ASSIGNEE(S): Michael A. Cobb & Company, USA  
 SOURCE: PCT Int. Appl., 41 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002037589	A2	20020510	WO 2001-US48417	2001 1030
WO 2002037589	A3	20030313		<--
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MR, MU, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW		
	RW:	GH, GM, KE, LS, MN, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, AP, EA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, EP, OR		
CA 2427501	A1	20020510	CA 2001-2427501	2001 1030
AU 2002030865	A	20020515	AU 2002-30865	2001 1030
EP 1342279	A2	20030910	EP 2001-991117	2001 1030
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRIORITY APPLN. INFO.: US 2000-244332P P				
2000 1030				
<--				
WO 2001-US48417 W				
2001 1030				
<--				

ED Entered STN: 12 May 2002

AB The present invention is a solid state electrochem. device incorporating planar sheets of cathode flow passages, in varying configurations and geometries, with thin coatings of electrocataly, anode and interconnect materials, which when assembled and bonded together form a monolithic honeycomb structure defining tubular passages for the air and gas to pass through. Air will flow through cathode flow passages inside the cell plates, while fuel will flow through passages formed between adjacent cells. Elec. insulating manifolds, designed to keep the fuel and air sep., are bonded at each end of the honeycomb monolith to feed air and fuel to the appropriate passages in the honeycomb. The fuel cell stack and manifolds are encased in metal housing or cover to provide the outer walls of the manifold, complete the package, and define a discrete fuel cell module for use singly or in groups in fuel cell power generation systems. IPCI H01M0008-00 [ICM,7]; H11M0008-24 [ICS,7]  
IPC H01M0008-12 [I,C\*]; H01M0008-12 [I,A]; H01M0008-24 [I,C\*];  
H01M0008-24 [I,A]

CC 52-2 (Electrochemical, Radialional, and Thermal Energy Technology)

ST fuel cell module solid oxide

IT Fuel cells

(power plants; improved solid oxide  
fuel cells)

IT Fuel cells

(solid electrolyte; improved solid

oxide fuel cells)  
 OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE  
 THIS RECORD (1 CITINGS)  
 REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L87 ANSWER 18 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 2000:589913 HCAPLUS Full-text  
 DOCUMENT NUMBER: 133:166288  
 TITLE: Planar solid oxide  
 fuel cell stack with  
 metallic foil interconnect  
 INVENTOR(S): Virkar, Anil V.; Kim, Jai-woh; Fung, Kuan-zong  
 PATENT ASSIGNEE(S): Gas Research Institute, USA  
 SOURCE: U.S., 6 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6106967	A	20000822	US 1999-332237	1999 0614 ---
CA 2391487	A1	20001221	CA 2000-2391487	2000 0614 ---
CA 2391487	C	20090929		
WO 2000077872	A1	20001221	WO 2000-US16387	2000 0614 ---
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 2000057386	A	20010102	AU 2000-57386	2000 0614 ---
EP 1105929	A1	20010613	EP 2000-942816	2000 0614 ---
EP 1105929	B1	20050406		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AT 292846	T	20050415	AT 2000-942816	2000 0614 ---
PRIORITY APPLN. INFO.:			US 1999-332237	A 1999 0614 ---

&lt;--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 24 Aug 2000

AB A solid oxide fuel cell

stack has a plurality of integral component fuel cell units, each integral component fuel cell unit having a porous anode layer, a porous cathode layer, and a dense electrolyte layer disposed between the porous anode layer and the porous cathode layer. The porous anode layer forms a plurality of substantially parallel fuel gas channels on its surface facing away from the dense electrolyte layer and extending from one side to the opposite side of the anode layer, and the porous cathode layer forms a plurality of substantially parallel oxidant gas channels on its surface facing away from the dense electrolyte layer and extending from one side to the opposite side of the cathode. A flexible metallic foil interconnect is provided between the porous anode and porous cathode of adjacent integral component fuel cell units.

INCL 429034000

IPC1 H01M0008-12 [ICM,7]

IPC1 H01M0008-02 [I,C\*]; H01M0008-02 [I,A]; H01M0008-12 [N,C\*]; H01M0008-12 [N,A]; H01M0008-24 [I,C\*]; H01M0008-24 [I,A]

NCL 429/458.000; 429/454.000; 429/465.000; 429/468.000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 55

ST fuel cell stack metallic foil

interconnect

IT Interconnections (electric)

Solid state fuel cells

(planar solid oxide fuel

cell stack with metallic foil interconnect)

IT Superalloys

RL: DEV (Device component use); USES (Uses)

(planar solid oxide fuel

cell stack with metallic foil interconnect)

IT 1313-99-1, Nickel oxide nio, uses 108916-22-9D, Lanthanum manganese strontium oxide La0.8MnSr0.2O3, O-deficient 114168-16-0, Tz-8y 157349-18-3

RL: DEV (Device component use); USES (Uses)

(planar solid oxide fuel

cell stack with metallic foil interconnect)

IT 1314-23-4, Zirconia, uses

RL: DEV (Device component use); USES (Uses)

(yttria-stabilized; planar solid oxide

fuel cell stack with metallic foil

interconnect)

IT 1314-36-9, Yttria, uses

RL: DEV (Device component use); USES (Uses)

(zirconia stabilized with; planar solid oxide

fuel cell stack with metallic foil

interconnect)

OS.CITING REF COUNT: 15 THERE ARE 15 CAPLUS RECORDS THAT CITE THIS RECORD (15 CITINGS)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L87 ANSWER 19 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2000:440405 HCAPLUS Full-text

DOCUMENT NUMBER: 133:46191

TITLE: Solid electrolyte fuel

cell modules

INVENTOR(S): Takeuchi, Shinji; Nishimura, Masayoshi;

Nagata, Masakatsu; Mochizuki, Masataka;

Iwasawa, Isamu

PATENT ASSIGNEE(S): Kansai Electric Power Co., Japan; Fujikura

Ltd.

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000182645	A	20000630	JP 1998-356749	1998 1215 ---
PRIORITY APPLN. INFO.:				JP 1998-356749 1998 1215 ---

ED Entered STN: 30 Jun 2000

AB The fuel cell modules have a power generating chamber containing several fuel cell assemblies, fuel gas supplying and discharging chambers above the power generating chamber, and a thermal insulator enclosing the chambers. The fuel cell has an electrolyte layer inside a cathode tube, an anode inside the electrolyte layer, and a fuel supplying-anode collector pipe inside the anode and are connected to each other without interconnectors to form the assembly. The cathodes of neighboring cells in an assembly are elec. connected by corrugated cathode collectors inserted between the cells along their length direction, the cathode collectors are connected to a cathode collector plate, and the anodes are connected through the fuel supplying-anode collector pipes and a collector plate. The cathode collectors have a stainless steel, Ni-Cr or Cr-Fe alloy substrate coated with LaCrO<sub>3</sub> or LaMnO<sub>x</sub>, and may have a Pt paste layer contacting the cathode.

IPC1 HO1M0008-02 [ICM,7]; HO1M0008-12 [ICS,7]; HO1M0008-24 [ICS,7]

IPC2 HO1M0008-02 [I,\*]; HO1M0008-02 [I,A]; HO1M0008-12 [I,C\*];

HO1M0008-12 [I,A]; HO1M0008-24 [I,C\*]; HO1M0008-24 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid electrolyte fuel cell module

IT Solid state fuel cells

(structure of interconnector-free solid electrolyte fuel cell modules)

IT 11105-45-6 11122-73-9 12597-68-1, Stainless steel, uses

RL: DEV (Device component use); USES (Uses)  
 (corrugated cathode collectors for cell connection in interconnector-free solid electrolyte fuel cell modules)

IT 12777-94-5, Chromium lanthanum oxide

RL: DEV (Device component use); USES (Uses)  
 (lanthanum chromite coated cathode collectors for cell connection in interconnector-free solid electrolyte fuel cell modules)

IT 61115-22-8, Lanthanum manganese oxide

RL: DEV (Device component use); USES (Uses)  
 (lanthanum manganite coated cathode collectors for cell connection in interconnector-free solid electrolyte fuel cell modules)

L87 ANSWER 20 OF 30 HCPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1999;161391 HCPLUS Full-text

DOCUMENT NUMBER: 130:299332

TITLE: Investigations of the long-term behavior of high-temperature fuel cell (SOFC) metallic interconnector materials with respect to compatibility with cathode-side contact layers

AUTHOR(S): Malkow, Thomas; Quadakkers, Willem J.; Singheiser, Lorenz; Nickel, Hubertus

CORPORATE SOURCE: Inst. Werkstoffe Verfahren Energietechnik,

Forschungszentrum Juelich G.m.b.H., Juelich,  
D-52425, Germany  
Berichte des Forschungszentrums Juelich (1998), Juel-3589, 1-170 pp.  
CODEN: FJBEE5; ISSN: 0366-0885

DOCUMENT TYPE:

Report

LANGUAGE:

German

ED Entered STN: 11 Mar 1999

AB In the present work the corrosion behavior of candidate metallic interconnector materials for SOFC applications in simulated service environments and their interaction with cathode-side contact layers were investigated. Two groups of metallic materials have been considered: Cr-ODS alloys based on the electrolyte foil concept and ferritic steels for anode supported SOFC applications. The investigations of the Cr-ODS alloys intended for operating temps. of about 950° have shown a, significant dependency of the oxidation behavior on the service environment. The oxidation behavior was not strongly affected by Y2O3 dispersion contents between 0.2 and 1%. Detsns. of the oxidation behavior of the ferritic steels at temps. between 700 and 900° have shown that com. Cr steels containing up to 20% Cr, as X10CrAl 18, are not suitable for SOFC applications because of the formation of elec. insulating Al2O3 oxide scales. Of all com. steels tested, the best combination of required properties for SOFC applications was found in 22% Cr steel Crofer 22. The oxidation resistance of this steel could be improved with respect to the SOFC requirements by addns. of small amts. of reactive elements (0.1-0.5%) as Y or Ce. Investigations of the elec. contact resistance and the interactions of the interconnector materials with cathode-side contact layers have shown that the high elec. conductivity of the perovskite contact layer materials has not been reflected in very low elec. contact resistances, because of inadequate sintering of the contact layers and poor attachment of these contact layers to the interconnector materials. Using LaCoO3 as contact material, secondary phase formation in the contact layer, reaction zone formation at the interface contact layer/alloy and crack initiation/propagation in the reaction zone caused in the different thermal expansion coeffs. were observed. Contact layers based on LaSrMnO3 exhibited less interaction with the metallic component. Based on the present investigations LaMnO3 type contact layers appear to be suitable for planar SOFC designs. Furthermore, addns. of sintering additives and application of a, functional layer based on LaCrO3 can improve the sinterability and the attachment of contact layers to the interconnector material.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST corrosion ferritic steel interconnection solid

electrolyte fuel cell; chromium iron

yttria interconnect corrosion thermal expansion

fuel cell

IT Corrosion

(hot; thermal expansion and corrosion of ferritic steels and Cr-base ODS alloys in simulated anode and cathode gases as high-temperature fuel cell metallic interconnector materials)

IT Scale (deposits)

(oxide, formation of; thermal expansion and corrosion of ferritic steels and Cr-base ODS alloys in simulated anode and cathode gases as high-temperature fuel cell metallic interconnector materials)

IT Contact resistance

Crack initiation

Fuel cell anodes

Fuel cell cathodes

Interconnections (electric)

Solid state fuel cells

Thermal expansion

(thermal expansion and corrosion of ferritic steels and Cr-base ODS alloys in simulated anode and cathode gases as high-temperature fuel cell metallic interconnector materials)

IT Oxidation

(thermal; thermal expansion and corrosion of ferritic steels and Cr-base ODS alloys in simulated anode and cathode gases as high-temperature fuel cell metallic interconnector materials)

## 10/561,789-347144-EIC SEARCH

IT 1333-74-0, Hydrogen, uses 7440-37-1, Argon, uses 7732-18-5,  
Water, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(anode gas-containing; thermal expansion and corrosion of  
ferritic steels and Cr-base ODS alloys in simulated  
anode and cathode gases as high-temperature  
fuel cell metallic interconnector  
materials)

IT 1302-67-6, Spinel 1308-38-9, Chromia, formation (nonpreparative)  
RL: FMU (Formation, unclassified); FORM (Formation,  
nonpreparative)  
(formation of; thermal expansion and corrosion of ferritic  
steels and Cr-base ODS alloys in simulated  
anode and cathode gases as high-temperature  
fuel cell metallic interconnector  
materials)

IT 1309-37-1, Iron oxide (FE2O3), formation (nonpreparative)  
RL: FMU (Formation, unclassified); FORM (Formation,  
nonpreparative)  
(formation of; thermal expansion and corrosion of ferritic  
steels and Cr-base ODS alloys in simulated  
anode and cathode gases as high-temperature  
solid-oxide fuel cell  
metallic interconnector materials)

IT 12611-79-9, Nirosta 4006 12743-96-3, X10CrAl18 12743-97-4,  
Ferrotherm 4762 12745-19-6, E-Brite 39366-96-6, Sandvik 4C54  
51569-64-3, Ferrotherm 4713 56712-91-5, Ferrotherm 4724  
82047-94-7, A129-4C 186672-90-2, Cr5Fe1Y2O3 223394-54-5,  
Cr5Fe0.5Y2O3 223394-55-6, Cr5Fe0.2Y2O3 223394-56-7, Crofer 22  
223394-57-8, Crofer 18Hf 223394-58-9, Fe25CrMn  
RL: DEV (Device component use); PEP (Physical, engineering or  
chemical process); PRP (Properties); PROC (Process); USES (Uses)  
(thermal expansion and corrosion of ferritic steels and Cr-  
base ODS alloys in simulated anode and  
cathode gases as high-temperature fuel cell  
metallic interconnector materials)

REFERENCE COUNT: 259 THERE ARE 259 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L87 ANSWER 21 OF 30 HCPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1999:74547 HCPLUS Full-text  
DOCUMENT NUMBER: 1301:112695  
TITLE: Tubular solid electrolyte  
fuel cells  
INVENTOR(S): Tateishi, Yuji  
PATENT ASSIGNEE(S): Kyocera Corp., Japan  
SOURCE: Jpn. Kokai Tokyo Koho, 5 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 11026000	A	19990129	JP 1997-173845	1997 0630
<--				
JP 3405659	B2	20030512	JP 1997-173845	1997 0630
<--				

PRIORITY APPLN. INFO.:

ED Entered STN: 04 Feb 1999

AB The fuel cells have a cathode and an anode on the opposite sides of a tubular solid electrolyte, an interconnector elec contacting the cathode or anode, and a 0.3-15  $\mu\text{m}$  thick plated metal layer on the surface of the interconnector.

IPC1 H01M0008-02 [ICM,6]; H01M0008-12 [ICS,6]

IPC2 H01M0008-02 [I,C\*]; H01M0008-02 [I,A]; H01M0008-12 [I,C\*];  
H01M0008-12 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST tubular solid electrolyte fuel cell  
interconnector; fuel cell metal plated  
interconnector

IT Solid state fuel cells

(tubular solid electrolyte fuel  
cells metal plated calcium lanthanum chromite  
interconnectors)

IT 7440-02-0, Nickel, uses 219655-03-5, Calcium chromium lanthanum  
oxide (Ca<sub>0.21</sub>Cr<sub>3</sub>La<sub>0.80</sub>3)

RL: DEV (Device component use); PEP (Physical, engineering or  
chemical process); PROC (Process); USES (Uses)  
(tubular solid electrolyte fuel  
cells metal plated calcium lanthanum chromite  
interconnectors)

L87 ANSWER 22 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1997:768961 HCAPLUS Full-text

DOCUMENT NUMBER: 128:50750

ORIGINAL REFERENCE NO.: 128:9913a, 9916a

TITLE: Manufacture of solid electrolyte  
fuel cells

INVENTOR(S): Hishinuma, Yuichi; Matsuzaki, Yoshio; Ogihara,  
Takashi

PATENT ASSIGNEE(S): Tokyo Gas Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 09306514	A	19971128	JP 1996-115052	1996 0509 ---
PRIORITY APPLN. INFO.:			JP 1996-115052	1996 0509 ---

ED Entered STN: 10 Dec 1997

AB Solid electrolyte fuel cells containing in serial connected planar unit cells, having a (La<sub>1-p</sub>M<sub>p</sub>)(Mn<sub>1-q</sub>M<sub>q</sub>)O<sub>3</sub> (M = Sr, Ba, and/or Ca; M<sub>1</sub> = Cr, Ni, Mg, Co, Zr, Ce, Fe, and/or Al; p  $\leq$  0.50; q  $\leq$  0.05) cathode and an anode on the opposite sides of an electrolyte plate, stacked alternately with (La<sub>1-x</sub>M<sub>x</sub>)(Cr<sub>1-y</sub>M<sub>y</sub>)O<sub>3</sub> (M<sub>2</sub> = Sr, Ba, and/or Ca; M<sub>3</sub> = Cr, Ni, Mg, Co, Zr, Ce, Fe, and/or Al; x  $\leq$  0.50, y  $\leq$  0.50) separators are prepared by coating (La<sub>1-p</sub>M<sub>p</sub>)(Mn<sub>1-q</sub>M<sub>q</sub>)O<sub>3</sub> on the separator, sintering, applying a (La<sub>1-p</sub>M<sub>p</sub>)(Mn<sub>1-q</sub>M<sub>q</sub>)O<sub>3</sub> binder layer between the separator and the cathode, sintering at 1000-1500° $\text{C}$  bond the cathode to the separator. These fuel cells have low internal resistance.

IPC1 H01M0008-02 [ICM,6]; H01M0004-86 [ICS,6]; H01M0004-88 [ICS,6];  
H01M0004-90 [ICS,6]; H01M0008-12 [ICS,6]

IPC2 H01M0004-86 [I,C\*]; H01M0004-86 [I,A]; H01M0004-88 [I,C\*];  
H01M0004-88 [I,A]; H01M0004-90 [I,C\*]; H01M0004-90 [I,A];  
H01M0008-02 [I,C\*]; H01M0008-02 [I,A]; H01M0008-12 [I,C\*];  
H01M0008-12 [I,A]; H01M0008-24 [I,C\*]; H01M0008-24 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid electrolyte fuel cell manuf;

lanthanum manganate cathode fuel cell  
 manuf; lanthanum chromate separator fuel  
 cell manuf  
 IT Solid state fuel cells  
 (manufacture of solid electrolyte fuel  
 cells with composition transition binder layers  
 between cathode and electrolyte layers)  
 IT 108916-21-8, Lanthanum manganese strontium oxide  
 (La<sub>0.6</sub>Mn<sub>2</sub>O<sub>4</sub>0.403) 120605-82-5, Lanthanum manganese strontium  
 oxide (La<sub>0.85</sub>Mn<sub>2</sub>O<sub>4</sub>0.1503) 200133-61-5  
 RL: DEV (Device component use); PEP (Physical, engineering or  
 chemical process); PROC (Process); USES (Uses)  
 (manufacture of solid electrolyte fuel  
 cells with composition transition binder layers  
 between cathode and electrolyte layers)  
 OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE  
 THIS RECORD (1 CITINGS)

L87 ANSWER 23 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 1997:433453 HCAPLUS Full-text  
 DOCUMENT NUMBER: 127:68520  
 ORIGINAL REFERENCE NO.: 127:13043a,13046a  
 TITLE: Unit cells for solid electrolyte  
 fuel cells  
 INVENTOR(S): Nishihara, Masahito; Akiyama, Masahide  
 PATENT ASSIGNEE(S): Kyocera Corp., Japan  
 SOURCE: Jpn. Kokai Tokyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 09129245	A	19970516	JP 1995-283830	1995 1031 ---
PRIORITY APPLN. INFO.:			JP 1995-283830	1995 1031 ---

ED Entered STN: 12 Jul 1997  
 AB The unit cells have a cathode and an anode on the opposite sides of a solid  
 electrolyte and a collector connected to 1 of the electrodes, where the anode is  
 composed of ZrO<sub>2</sub> and/or CeO<sub>2</sub> and a metal selected from Ni, Co, Ti, and W with the oxide on  
 the anode surface having greater average particle size than those contacting the electrolyte.  
 These cells have long lifetime. IPCI H01M0004-86 [ICM,6]; H01M0008-02 [ICs,6]  
 IPCR H01M0004-86 [I,C\*]; H01M0004-86 [I,A]; H01M0008-02 [I,C\*];  
 H01M0008-02 [I,A]  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST solid electrolyte fuel cell  
 anode; zirconia size distribution fuel  
 cell anode; ceria size distribution fuel  
 cell anode; particle size distribution  
 fuel cell anode  
 IT Fuel cell anodes  
 (size distribution of oxide particles in  
 oxide-metal anodes for solid  
 electrolyte fuel cells)  
 IT 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 7440-33-7,  
 Tungsten, uses 7440-48-4, Cobalt, uses 67338-79-8, Cerium  
 yttrium oxide (Ce1Y2O41) 106830-29-9, Yttrium zirconium oxide  
 (Y0.2Zr0.9O2.1)  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)

(size distribution of oxide particles in  
oxide-metal anodes for solid  
electrolyte fuel cells)

L87 ANSWER 24 OF 30 HCPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1997:405713 HCPLUS Full-text  
DOCUMENT NUMBER: 127:37132  
ORIGINAL REFERENCE NO.: 127:7091a, 7094a  
TITLE: Solid electrolyte fuel  
cells with mechanical seals  
INVENTOR(S): Hishinuma, Yuchi; Matsuzaki, Yoshio  
PATENT ASSIGNEE(S): Tokyo Gas Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokyo Koho, 4 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09115530	A	19970502	JP 1995-269584	
				1995
				1018
<--				
PRIORITY APPLN. INFO.:		JP 1995-269584		
		1995		
		1018		
<--				

ED Entered STN: 02 Jul 1997

AB The fuel cells have in series  
connected unit cells, gas distributing separators stacked alternately with the cells, and metal mesh or felt between the anodes and the fuel gas passages on the separators; where the separators have recessed areas at their edges on the upper surface fit in the protruded areas at the edges on the bottom surface of a neighboring separator to form mech. seals. The seals may also contain heat resistant metal gasket between the separators and the electrolyte plates of the cells. The gasket may be Cr-Fe alloys containing 23% Al and may be coated with Al2O3, ZrO2, and CeO2. The separators may have an insulator substrate, e.g., Al2O3 or MgO-Mg aluminate composite, laminated with a conductivity oxide. IPCI H01M0008-02 [ICM,6]

IPCR H01M0008-02 [I,C\*]; H01M0008-02 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST solid electrolyte fuel cell mech  
seal; chromium iron alloy gasket fuel  
cell; alumina conductive oxide fuel cell  
separator; magnesia magnesium aluminate fuel  
cell separator

IT Oxides (inorganic), uses

RL: DEV (Device component use); USES (Uses)  
(conductive; separators with alumina or  
magnesia-magnesium aluminate substrates laminated  
with conductive oxide for solid  
electrolyte fuel cells)

IT Seals (parts)

(gas; structure of mech. seals for solid  
electrolyte fuel cells)

IT Fuel cell separators

(separators with alumina or magnesia-magnesium  
aluminate substrates laminated with conductive  
oxide for solid electrolyte  
fuel cells)

IT Fuel cells

(structure of mech. seals for solid  
electrolyte fuel cells)

IT Gaskets

(structure of solid electrolyte fuel

## 10/561,789-347144-EIC SEARCH

cells containing aluminum containing chromium-iron alloy gaskets)

IT 1344-28-1, Alumina, uses  
RL: DEV (Device component use); USES (Uses)  
(aluminum containing chromium-iron alloy gaskets with alumina coatings for solid electrolyte fuel cells)

IT 1306-38-3, Ceria, uses  
RL: DEV (Device component use); USES (Uses)  
(aluminum containing chromium-iron alloy gaskets with ceria coatings for solid electrolyte fuel cells)

IT 1314-23-4, Zirconia, uses  
RL: DEV (Device component use); USES (Uses)  
(aluminum containing chromium-iron alloy gaskets with zirconia coatings for solid electrolyte fuel cells)

IT 1309-48-4, Magnesia, uses 11137-98-7, Magnesium aluminate  
RL: DEV (Device component use); USES (Uses)  
(separators with alumina or magnesia-magnesium aluminate substrates laminated with conductive oxide for solid electrolyte fuel cells)

IT 7429-90-5, Aluminum, uses 11133-82-7  
RL: DEV (Device component use); USES (Uses)  
(structure of solid electrolyte fuel cells containing aluminum containing chromium-iron alloy gaskets)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L87 ANSWER 25 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
ACCESSION NUMBER: 1993:521264 HCAPLUS Full-text  
DOCUMENT NUMBER: 119:121264  
ORIGINAL REFERENCE NO.: 119:21735a,21738a  
TITLE:  
Solid-oxide  
electrolyte fuel  
cells  
INVENTOR(S): Nishida, Kunio; Takagi, Hiroshi  
PATENT ASSIGNEE(S): Murata Manufacturing Co, Japan  
SOURCE: Jpn. Kokai Tokyo Koho, 5 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 05094828	A	19930416	JP 1991-256799	1991 1003
			<--	
JP 3151872	B2	20010403	JP 1991-256799	1991 1003
PRIORITY APPLN. INFO.:			<--	

ED Entered STN: 18 Sep 1993

AB The fuel cells comprise a solid- oxide electrolyte plate, having an anode and a cathode on the opposite sides, stacked with distributors, and interconnectors; where the interconnector has an electrolyte-based perforated substrate, an nonionic conductive material on the surface of or inside the substrate, and a conductive material coated on the both sides and filled in the holes of the substrate. The electrolyte is preferably a ZrO<sub>2</sub>-based material, and the nonionic conductive material is La<sub>2</sub>Mn<sub>207</sub>. IPCI H01M0008-02 [ICM,5]; H01M0008-12 [ICS,5]

## 10/561,789-347144-EIC SEARCH

IPCR H01M0008-02 [I,C\*]; H01M0008-02 [I,A]; H01M0008-12 [I,C\*];  
 H01M0008-12 [I,A]  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST solid electrolyte fuel cell  
 interconnector  
 IT Fuel cells  
 (solid-state, interconnectors for, structure of)  
 IT 1314-23-4, Zirconia, uses  
 RL: USES (Uses)  
 (electrolytes, interconnectors containing,  
 structure of, for fuel cell)  
 IT 149661-80-3, Lanthanum manganese oxide (La2Mn207)  
 RL: USES (Uses)  
 (interconnectors containing, structure of, for  
 solid-electrolyte fuel  
 cells)

L87 ANSWER 26 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 1993:499867 HCAPLUS Full-text  
 DOCUMENT NUMBER: 119:99867  
 ORIGINAL REFERENCE NO.: 119:17929a,17932a  
 TITLE: Cell units for  
 solid-oxide fuel  
 cells and powder generators using  
 units  
 INVENTOR(S): Soma, Takao; Kawasaki, Shinji; Yoshioka,  
 Katsuki  
 PATENT ASSIGNEE(S): NGK Insulators, Ltd., Japan  
 SOURCE: Eur. Pat. Appl., 37 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 536925	A1	19930414	EP 1992-308752	1992 0925
			<--	
EP 536925	B1	19970730		
R: DE, FR, GB				
JP 05089890	A	19930409	JP 1991-249619	1991 0927
			<--	
JP 2758520	B2	19980528		
JP 05166518	A	19930702	JP 1991-328697	1991 1212
			<--	
JP 2783926	B2	19980806		
JP 05166529	A	19930702	JP 1991-328698	1991 1212
			<--	
US 5292599	A	19940308	US 1992-948011	1992 0902
			<--	
EP 740358	A2	19961030	EP 1996-110285	1992 0925
			<--	
EP 740358	B1	20030903		

R: DE, FR, GB  
PRIORITY APPLN. INFO.:

JP 1991-249619	A	1991 0927
<--		
JP 1991-328697	A	1991 1212
<--		
JP 1991-328698	A	1991 1212
<--		
EP 1992-308752	A	1992 0925
<--		

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 04 Sep 1993

AB The units have a laminate structure including a cell element and a separator. The cell element includes a dense and planar solid electrolyte of a rectangular plane shape, and an air cathode film and a fuel anode film provided on the opposite surfaces of the electrolyte. The separator is made of a dense electron conductor. A plurality of oxidizing gas flow paths is defined between the separator and the cathode, and the ratio of the long side:the short side of the rectangular cell element is 22. The power generators comprise a plurality of cell units arranged at a given interval and include a fuel-gas chamber, a power-generating chamber, a combustion chamber, and an oxidizing-gas chamber. The anodes and opening of a plurality of the cell units are arranged in substantially the same directions, the anode of each of the cell units is connected to the separator of the vertically adjacent cell unit in series by a heat-resistant conductor not interrupting flowing of a gas, and the separators of the laterally adjacent cell units are connected to each other in parallel through a similar conductor and in a similar way.

IPC1 H01M0008-00 [ICM,5]; H01M0008-24 [ICS,5]

IPC2 H01M0008-02 [I,C\*]; H01M0008-02 [I,A]; H01M0008-12 [N,C\*];

H01M0008-12 [N,A]; H01M0008-24 [I,C\*]; H01M0008-24 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST fuel cell power generator

IT Fuel cells

(power plants, design of)

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE  
THIS RECORD (5 CITINGS)

L87 ANSWER 27 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1992:534462 HCAPLUS Full-text

DOCUMENT NUMBER: 117:134462

ORIGINAL REFERENCE NO.: 117:23291a,23294a

TITLE: Composite membranes and solid-  
oxide fuel cells  
containing them

INVENTOR(S): Kendall, Kevin

PATENT ASSIGNEE(S): Imperial Chemical Industries PLC, UK

SOURCE: Eur. Pat. Appl., 11 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
EP 482783	A2	19920429	EP 1991-309159	1991 1007
<--				
EP 482783	A3	19930414		

## 10/561,789-347144-EIC SEARCH

R: BE, DE, FR, GB, IT, NL			
AU 9185816	A	19920430	AU 1991-85816
			1991
			1015
<--			
AU 644905	B2	19931223	
CA 2053614	A1	19920425	CA 1991-2053614
			1991
			1017
<--			
US 5190834	A	19930302	US 1991-780204
			1991
			1022
<--			
JP 05182677	A	19930723	JP 1991-275278
			1991
			1023
<--			
PRIORITY APPLN. INFO.:			GB 1990-23091
			A
			1990
			1024
<--			

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 04 Oct 1992

AB A corrugated, spiral-shape, or tubular membrane comprises 21 traverse domain of an electrolyte material and 21 traverse domain of an electronically conducting interconnect material, with both the electrolyte and the interconnector materials exposed on both major faces of the membrane. The fuel cells include 21 composite membrane with anode(s) and cathode(s) arranged on the opposite sides of the membrane. The membrane is prepared by sep. dispersing a particulate electrolyte material (stabilized ZrO<sub>2</sub>) and a particulate interconnecting material (doped LaCrO<sub>3</sub>) in a polymer-based binder to form pastes, forming the pastes into a cohesive precursor membrane, removing the binder, and sintering. IPCI H01M0008-12 [ICM,5]; H01M0008-24 [ICS,5]

IPCR H01M0008-02 [I,C\*]; H01M0008-02 [I,A]; C04B0035-486 [I,C\*]; C04B0035-486 [I,A]; G01N0027-407 [I,C\*]; G01N0027-407 [I,A]; H01M0006-18 [I,C\*]; H01M0006-18 [I,A]; H01M0008-12 [I,C\*]; H01M0008-12 [I,A]; H01M0008-24 [I,C\*]; H01M0008-24 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST fuel cell electrolyte  
interconnect membrane; zirconia lanthanum chromite  
membrane

IT Fuel-cell electrolytes  
(stabilized zirconia, membranes, containing electronically  
conducting interconnectors)

IT 12017-94-6, Chromium lanthanum oxide (CrLaO<sub>3</sub>)

RL: USES (Uses)  
(calcium- or strontium-doped, interconnectors,  
membranes containing zirconia electrolyte and, for  
fuel cells)

IT 7440-24-6, Strontium, uses 7440-70-2, Calcium, uses  
RL: USES (Uses)  
(lanthanum chromite or lanthanum manganite doped with,  
membranes containing zirconia electrolyte and, for  
fuel cells)

IT 1314-23-4, Zirconia, uses  
RL: USES (Uses)  
(yttria-stabilized, electrolyte, membranes containing  
electronically interconnect materials and, for  
fuel cells)

IT 1314-36-9, Yttria, uses  
RL: USES (Uses)  
(zirconia stabilized with, electrolyte, membranes  
containing electronically interconnect materials and, for  
fuel cells)

OS.CITING REF COUNT: 24 THERE ARE 24 CAPLUS RECORDS THAT CITE

L87 ANSWER 28 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 1989:636656 HCAPLUS Full-text  
 DOCUMENT NUMBER: 111:236656  
 ORIGINAL REFERENCE NO.: 111:39271a, 39274a  
 TITLE: Manufacture of monolithic solid-  
 oxide fuel-cell  
 stack  
 INVENTOR(S): Maricle, Donald L.; Buswell, Richard F.  
 PATENT ASSIGNEE(S): International Fuel Cells Corp., USA  
 SOURCE: U.S., 8 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4857420	A	19890815	US 1987-107817	
				1987
				1013
<--				
PRIORITY APPLN. INFO.:		US 1987-107817		
		1987		
		1013		
<--				

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 23 Dec 1989

AB The stack is prepared by forming a plurality of electrode subassemblies and a plurality of gas separator-reactor flow field subassemblies, stacking these subassemblies alternately with the cathode material layer abutting the cathode- and the anode material layer abutting the anode-flow field layers, heating the obtained preassembly to a subsintering temperature to soften and creep flatten the subassemblies and to form an intimate interfacial contact between them, and by applying a light compressive load axially of the preassembly during the heating step to fuse the subassemblies together. The electrode subassemblies are formed by providing appropriately sized green unsintered tapes of solid-oxide electrolyte material, sintering the tapes at .apprx.1400-1600° to form sintered plates of appropriate operational d., and by forming a finished layer of anode material on 1 and a finished layer of cathode material on the opposite surface of the sintered electrolyte plate. The other subassemblies are formed by providing appropriately sized green unsintered sheets of interconnect material; sintering the sheets at .apprx.1650-1750° to form laminae of appropriate operational d.; forming a finished anode-flow field layer, including a plurality of parallel ribs and intervening grooves extending across the laminae, on 1 surface of the laminae, in a 1st direction; and by forming similarly a finished cathode-flow field layer on the opposite surface of the laminae, extending in a direction perpendicular to the 1st direction.

INCL 42903000

IPC1 H04M0008-10 [ICM]; B05D0005-12 [ICS]

IPC2 H01M0008-24 [I,C\*]; H01M0008-24 [I,A]

NCL 429/495.000; 029/623.500; 427/115.000; 429/514.000; 429/535.000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST fuel cell stack monolithic manuf; oxide

fuel cell stack monolithic

IT Fuel cells

(solid-oxide, stacks, manufacture of monolithic)

OS.CITING REF COUNT: 24 THERE ARE 24 CAPLUS RECORDS THAT CITE

THIS RECORD (24 CITINGS)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE

FOR THIS RECORD. ALL CITATIONS AVAILABLE

IN THE RE FORMAT

DOCUMENT NUMBER: 101:214083  
 ORIGINAL REFERENCE NO.: 101:32423a, 32426a  
 TITLE: Integral manifolding structure for a  
 fuel cell core having a  
 parallel gas flow  
 INVENTOR(S): Herceg, Joseph E.  
 PATENT ASSIGNEE(S): United States Dept. of Energy, USA  
 SOURCE: U.S., 14 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4476197	A	19841009	US 1983-541178	1983 1012
US 541178	A0	19841109	US 1983-541178	1983 1012

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PRIORITY APPLN. INFO.:

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
 ED Entered STN: 29 Jun 2007  
 AB Manifolding means for directing the fuel and oxidant gases to parallel flow passageways in a fuel cell core are disclosed. Each core passageway is defined by electrolyte and interconnect walls. Each electrolyte (ZrO<sub>2</sub> + Y2O<sub>3</sub>) and interconnect wall (LaCrO<sub>3</sub>) consists resp. of anode (Co + ZrO<sub>2</sub> + Y2O<sub>3</sub>) and cathode (LaMnO<sub>3</sub>) materials layered on the opposite sides of electrolyte material, or on the opposite sides of interconnect material. A core wall projects beyond the open ends of the defined core passageways and is disposed approx. midway between and parallel to the adjacent overlaying and underlying interconnect walls to define manifold chambers between them on opposite sides of the wall. Each electrolyte wall defining the flow passageways is shaped to blend into and be connected to this wall to redirect the corresponding fuel and oxidant passageways to the resp. manifold chambers either above or below this intermediate wall. Inlet and outlet connections are made to these sep. manifold chambers resp., for carrying the fuel and oxidant gases to the core, and for carrying their reaction products away from the core.

INCL 429032000

IPCI H01M0008-10 [ICM]

IPC1 H01M0008-24 [I,C\*]; H01M0008-24 [I,A]

NCL 429/456.000; 429/488.000; 429/513.000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST fuel cell integral manifolding structure

IT Fuel cells

(solid-oxide, with parallel gas flow,  
integral manifolding structure for)

IT 12031-12-8

RL: USES (Uses)  
(cathodes, fuel-cell)

IT 7440-48-4, uses and miscellaneous

RL: USES (Uses)  
(fuel-cell anodes from mixture of  
yttria-zirconia-)

IT 1314-23-4, uses and miscellaneous

RL: USES (Uses)  
(fuel-cell electrolyte from  
yttria-stabilized)

IT 1314-36-9, uses and miscellaneous

RL: USES (Uses)  
(fuel-cell electrolyte from  
zirconia stabilized with)

IT 12017-94-6

RL: USES (Uses)  
 (fuel-cell interconnect wall)  
 OS.CITING REF COUNT: 14 THERE ARE 14 CAPLUS RECORDS THAT CITE  
 THIS RECORD (14 CITINGS)  
 REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L87 ANSWER 30 OF 30 HCAPLUS COPYRIGHT 2010 ACS on STN  
 ACCESSION NUMBER: 1983:615829 HCAPLUS Full-text  
 DOCUMENT NUMBER: 99:215829  
 ORIGINAL REFERENCE NO.: 99:33189a, 33192a  
 TITLE: Electrical generators of the fuel  
 cell type  
 INVENTOR(S): Isenberg, Arnold Otto  
 PATENT ASSIGNEE(S): Westinghouse Electric Corp., USA  
 SOURCE: Eur. Pat. Appl., 13 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 89852	A1	19830928	EP 1983-301602	
				1983 0322
EP 89852	B1	19860827		<--
R: DE, FR, GB, IT, NL				
US 4431715	A	19840214	US 1982-361286	
				1982 0324
JP 58175267	A	19831014	JP 1983-44030	
				1983 0315
JP 04043388	B	19920716		<--
PRIORITY APPLN. INFO.:			US 1982-361286	A
				1982 0324
				<--

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 12 May 1984

AB A high-temperature solid oxide electrolyte -type fuel-cell generator with an elec. connection of the fuel cell

electrodes to the elec. output bus, which is brought through the generator housing to be connected to an elec. load line, maintains a highly uniform temperature distribution. The elec. connection includes an electrode bus which is spaced parallel to the output bus with a plurality of sym. spaced transversely extending conductors extending between the electrode bus and the output bus, with thermal insulation provided about the transverse conductors between the spaced apart buses. Single or plural stages of the insulated transversely extending conductors can be provided within the high-temperature regions of the fuel-cell generator to provide highly homogeneous temperature distribution over the contacting surfaces.

IPC1 H01M0008-12 [ICM]; H01M0008-24 [ICS]; H01M0002-20 [ICS]

IPC2 H01M0008-12 [I,C\*]; H01M0008-12 [I,A]; H01M0002-20 [I,C\*];

H01M0002-20 [I,A]; H01M0008-02 [I,C\*]; H01M0008-02 [I,A];

H01M0008-24 [I,C\*]; H01M0008-24 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST fuel cell elec generator

IT Fuel cells

(solid oxide electrolyte, of  
 uniform temperature distribution)

10/561,789-347144-EIC SEARCH

OS.CITING REF COUNT: 9

THERE ARE 9 CAPLUS RECORDS THAT CITE  
THIS RECORD (9 CITINGS)

FULL SEARCH HISTORY

=&gt; d his nofile

(FILE 'HOME' ENTERED AT 15:01:27 ON 09 NOV 2010)

FILE 'HCAPLUS' ENTERED AT 15:01:33 ON 09 NOV 2010  
E US20070248864/PNL1 1 SEA SPE=ON ABB=ON PLU=ON US20070248864/PN  
D ALL  
D SCA

FILE 'STNGUIDE' ENTERED AT 15:03:28 ON 09 NOV 2010

FILE 'HCAPLUS' ENTERED AT 15:04:48 ON 09 NOV 2010  
SEL L1 AUL2 776 SEA SPE=ON ABB=ON PLU=ON ("MIKAMI, KOICHI"/AU OR  
"SAKAMOTO, HIROTOSHI"/AU OR "YOSHIKATA, KUNIAKI"/AU)

FILE 'ZCAPLUS' ENTERED AT 15:05:29 ON 09 NOV 2010

L3 QUE SPE=ON ABB=ON PLU=ON MIKAMI K/AU  
L4 QUE SPE=ON ABB=ON PLU=ON SAKAMOTO H/AU  
L5 QUE SPE=ON ABB=ON PLU=ON YOSHIKATA K/AU  
L6 QUE SPE=ON ABB=ON PLU=ON L3 AND L4 AND L5

FILE 'HCAPLUS' ENTERED AT 15:07:34 ON 09 NOV 2010

L7 4 SEA SPE=ON ABB=ON PLU=ON L3 AND L4 AND L5  
D SCA

E FUEL CELLS/CT 25

L8 16396 SEA SPE=ON ABB=ON PLU=ON FUEL?(6A)CELL?(6A)SOLID?(6A  
)OXID?L9 16030 SEA SPE=ON ABB=ON PLU=ON (FUEL?(3A)CELL?)(L)(SOLID?(  
2A)OXID?)L10 16595 SEA SPE=ON ABB=ON PLU=ON L8 OR L9  
L11 118100 SEA SPE=ON ABB=ON PLU=ON FUEL?(2A)CELL?  
L12 QUE SPE=ON ABB=ON PLU=ON SUBSTRAT? OR SURFACE? OR  
BASE# OR SUBSTRUCT? OR UNDERSTRUCTUR? OR UNDERLAY? OR  
FOUNDATION? OR PANE? OR DISK? OR DISC# OR WAFER? OR  
PLATE OR PLATESL13 1 SEA SPE=ON ABB=ON PLU=ON L1 AND L10  
D SCA  
D KWIC

L14 QUE SPE=ON ABB=ON PLU=ON ELECTROLYT?

L15 8851 SEA SPE=ON ABB=ON PLU=ON L10 AND L12

L16 4809 SEA SPE=ON ABB=ON PLU=ON L15 AND L14

L17 QUE SPE=ON ABB=ON PLU=ON ELECTROD? OR CATHOD? OR  
ANOD? OR ELECTROD?(2A)(POSITIVE OR NEGATIVE)

L18 3633 SEA SPE=ON ABB=ON PLU=ON L16 AND L17

L19 1528 SEA SPE=ON ABB=ON PLU=ON L18 AND (CATHOD? OR  
ELECTROD?(2A)POSITIVE) AND (ANOD? OR ELECTROD?(2A)NEGAT  
IVE)

L20 0 SEA SPE=ON ABB=ON PLU=ON L1 AND L19

L21 1 SEA SPE=ON ABB=ON PLU=ON L1 AND L18

D KWIC

L22 3633 SEA SPE=ON ABB=ON PLU=ON L18 OR L19

L23 QUE SPE=ON ABB=ON PLU=ON (SAME OR OPPOSITE)(3A)(SIDE  
OR SURFACE)

L24 77 SEA SPE=ON ABB=ON PLU=ON L22 AND L23

L25 QUE SPE=ON ABB=ON PLU=ON (SPACE OR DISTAN? OR  
LENGTH OR SEPARAT?) (3A)(MEASUR? OR PREDETERMIN? ORDETERMIN? OR SPECIF? OR EQUAL? OR EQUI? OR UNIFORM?)  
QUE SPE=ON ABB=ON PLU=ON EQUIDIST? OR EQUI?(A)DISTAN?  
OR EQUIDISTAN?

L26 9 SEA SPE=ON ABB=ON PLU=ON L22 AND (L25 OR L26)

D QUE

L27 0 SEA SPE=ON ABB=ON PLU=ON L24 AND L27

L29           86 SEA SPE=ON ABB=ON PLU=ON L24 OR L27  
 L30           QUE SPE=ON ABB=ON PLU=ON SPACE? OR SPACING? OR  
               DISTAN? OR LENGTH? OR SEPARAT? OR MEASUR? OR PREDETERMI  
               N? OR DETERMIN? OR SPECIF? OR EQUAL? OR EQUI? OR  
               UNIFORM? OR EQUI?(A)DISTAN? OR EQUIDISTAN?  
 L31           1579 SEA SPE=ON ABB=ON PLU=ON L22 AND L30  
 L32           48 SEA SPE=ON ABB=ON PLU=ON L29 AND L31  
 L33           86 SEA SPE=ON ABB=ON PLU=ON L29 OR L32  
 L34           1 SEA SPE=ON ABB=ON PLU=ON L1 AND L33  
               D KWIC  
 L35           QUE SPE=ON ABB=ON PLU=ON ELEMENT? OR BODY? OR UNIT?  
               OR ASSEMBL?  
 L36           370 SEA SPE=ON ABB=ON PLU=ON L31 AND L35  
 L37           21 SEA SPE=ON ABB=ON PLU=ON L36 AND L33  
               D KWIC  
 L38           1 SEA SPE=ON ABB=ON PLU=ON L1 AND L37  
               D KWIC  
 L39           86 SEA SPE=ON ABB=ON PLU=ON L33 OR L37  
 L40           QUE SPE=ON ABB=ON PLU=ON INSULAT?  
 L41           4 SEA SPE=ON ABB=ON PLU=ON L39 AND L40  
 L42           52 SEA SPE=ON ABB=ON PLU=ON L31 AND L40  
 L43           135 SEA SPE=ON ABB=ON PLU=ON L37 OR L39 OR L41 OR L42  
 L44           QUE SPE=ON ABB=ON PLU=ON PLURAL? OR MULTI? OR  
               SEVERAL? OR MANY  
 L45           39 SEA SPE=ON ABB=ON PLU=ON L43 AND L44  
 L46           105 SEA SPE=ON ABB=ON PLU=ON L39 OR L41 OR L45  
 L47           135 SEA SPE=ON ABB=ON PLU=ON L46 OR L43  
 L48           QUE SPE=ON ABB=ON PLU=ON PRINT?  
 L49           8 SEA SPE=ON ABB=ON PLU=ON L47 AND L48  
 L50           QUE SPE=ON ABB=ON PLU=ON ADHESI? OR ADHERE? OR  
               STICK? OR CLING? OR BOND? OR CEMENT? OR CONGLUTIN? OR  
               AGGLUTIN? OR MUCILAG? OR TACK? OR GLUE? OR GLUING OR  
               PASTE? OR FASTING OR GUM? OR HOLD? OR GRIP? OR GRASP?  
               OR BIND? OR SEAL?  
 L51           34 SEA SPE=ON ABB=ON PLU=ON L47 AND L50  
 L52           QUE SPE=ON ABB=ON PLU=ON GROOVE? OR FURROW? OR  
               CLEFT### OR GRID? OR MESH## OR SCORE# OR INDENT? OR  
               INCIS? OR STRIAT? OR GOUGE? OR TRENCH? OR TROUGH? OR  
               RUT### OR RIBBED?  
 L53           QUE SPE=ON ABB=ON PLU=ON CHANNEL? OR CONDUIT? OR  
               DUCT? OR PASSAGE? OR TROUGH? OR TUNNEL?  
 L54           38 SEA SPE=ON ABB=ON PLU=ON L47 AND (L52 OR L53)  
 L55           135 SEA SPE=ON ABB=ON PLU=ON L47 OR L49 OR L51 OR L54  
 L56           QUE SPE=ON ABB=ON PLU=ON DISPOS? OR ATTACH? OR  
               ADHER? OR ADSOR? OR ABSOR? OR PART? OR ADJ? OR SINGL?  
 L57           66 SEA SPE=ON ABB=ON PLU=ON L55 AND L56  
 L58           QUE SPE=ON ABB=ON PLU=ON CONNECT? OR INTERCONNECT?  
               OR INTER?(A)CONNECT?  
 L59           135 SEA SPE=ON ABB=ON PLU=ON L55 OR L57  
 L60           49 SEA SPE=ON ABB=ON PLU=ON L59 AND L58  
 L61           112 SEA SPE=ON ABB=ON PLU=ON L60 OR L39  
 L62           1 SEA SPE=ON ABB=ON PLU=ON L1 AND L61  
               D SCA  
               D KWIC  
 L63           135 SEA SPE=ON ABB=ON PLU=ON L59 OR L60 OR L61  
 L64           10 SEA SPE=ON ABB=ON PLU=ON L63 AND ((L2 OR L3 OR L4  
               OR L5 OR L6 OR L7))  
               SAV TEMP L64 WE1789HCPIN/A  
               D SCA  
 L65           QUE SPE=ON ABB=ON PLU=ON FUELCELL? OR (FUEL?(2A)CELL  
               ?) OR FC OR SOFC OR DFC OR PEMFC  
 L66           135 SEA SPE=ON ABB=ON PLU=ON L63 AND L65  
 L67           10 SEA SPE=ON ABB=ON PLU=ON L64 AND L66  
               SAV TEMP L67 WE1789HCPIN/A  
 L68           125 SEA SPE=ON ABB=ON PLU=ON L66 NOT L67  
               D L1 PRAI  
 L69           QUE SPE=ON ABB=ON PLU=ON PY=<2005 NOT P/DT

## 10/561,789-347144-EIC SEARCH

L70           QUE SPE=ON ABB=ON PLU=ON (PY=<2005 OR PRY=<2005 OR  
AY=<2005 OR MY=<2005 OR REVIEW/DT) AND P/DT

L71    79 SEA SPE=ON ABB=ON PLU=ON L68 AND (L69 OR L70)

L72    30 SEA SPE=ON ABB=ON PLU=ON L71 AND L58

L73    55 SEA SPE=ON ABB=ON PLU=ON L71 AND L33

L74    67 SEA SPE=ON ABB=ON PLU=ON L72 OR L73

L75    18 SEA SPE=ON ABB=ON PLU=ON L72 AND L73

L76    55 SEA SPE=ON ABB=ON PLU=ON L73 AND (L23 OR L25 OR L26  
OR L48 OR L50)

L77    55 SEA SPE=ON ABB=ON PLU=ON L76 AND L14 AND L17 AND  
L12

L78    55 SEA SPE=ON ABB=ON PLU=ON L76 AND L14

L79    55 SEA SPE=ON ABB=ON PLU=ON L76 AND L17

L80    55 SEA SPE=ON ABB=ON PLU=ON L76 AND L12

L81    51 SEA SPE=ON ABB=ON PLU=ON L80 AND L23

L82    51 SEA SPE=ON ABB=ON PLU=ON L80 AND (SAME OR OPPOS?)

L83    51 SEA SPE=ON ABB=ON PLU=ON L81 OR L82

L84    52 SEA SPE=ON ABB=ON PLU=ON L83 OR L75

L85    18 SEA SPE=ON ABB=ON PLU=ON L84 AND (L72 OR L75)

L86    30 SEA SPE=ON ABB=ON PLU=ON L85 OR L72 OR L75  
D SCA

L87    30 SEA SPE=ON ABB=ON PLU=ON L86 AND L10  
SAV TEMP L87 WEI789HCP/A  
D QUE L67  
D L67 1-10 IBIB ED ABS HITIND  
D QUE L87  
D L87 1-30 IBIB ED ABS HITIND